



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

MAR 28 2011

Lt. Colonel Jason A. Kirk  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Re: I-73 SAC 2008-1333-DIS

Dear Lt. Colonel Kirk:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system approximately 80 miles in length located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The Environmental Protection Agency (EPA), Region 4 has reviewed the JPN, and supporting information supplied by the applicant dated January 4, 2011. Based on that review EPA has found that the project does not comply with Section 404(b)(1) Guidelines, as a result we recommend that the permit for the project, as currently proposed, be denied.

#### **Alternative Analysis**

The applicant's preferred alternative is to construct a new four lane interstate roadway approximately 80 miles in length in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The applicant's preferred route runs parallel to SC 38/ US 501, a current four lane route. A high percentage of the preferred alternative is new road and intuitively may cause greater impacts and fragmentation than utilizing an existing road corridor, including the SC 38/US 501. After looking at aerial photos of the existing four lane SC 38/US 501 route, it appears that a large portion of the wetlands previously identified in National Wetland Inventory (NWI) maps, which the applicant based the decision to eliminate this existing route from analysis during the National Environmental Policy Act (NEPA) process, are now agricultural fields and pine plantations and are likely degraded, drained or filled. As an alternative to the applicant's preferred route, the use of the existing SC 38/US 501 road corridor would remove the need for a new crossing of Aquatic Resources of National Importance (ARNI) including the State Heritage Preserve wetlands and streams and the Lake Swamp area. The most current aerial photography also shows construction of upgrades at the intersection of SC 38 and US 501 and the intersection of US 301 and US 501. Continued up-grades such as these could provide a less costly expressway with fewer impacts than the preferred alternative.

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EPA highly recommends the consideration of this existing SC 38/US 501 route, along with phased up-grades, as the preferred alternative for the I-73 corridor, as it is an existing four lane highway with up-grade potential, and transects already degraded waters of the U.S. This recommendation is proposed as a lower impact alternative to the applicant's preferred alternative corridor. In a recent third party study dated March 11, 2011, provided to EPA and paid for by the Southern Environmental Law Center, the transportation analyst concluded that the existing SC 38/US 501 route, with up-grades, would be the least impacting and costly route of all that were evaluated.

The study also suggests two additional options, including a route following the SC 9 corridor, or a route that would include a new connector from US 74 to SC Route 22, as opposed to the applicant's preferred alternative. The US 501 and SC Route 9 corridors were both examined early in the NEPA process, by evaluating very wide corridors which resulted in estimates of large impacts. For this reason, they were both eliminated from further consideration. EPA, however, recommends a re-examination of these options using the more narrow corridor width that was later used to evaluate the applicant's preferred alternative, to allow for an equivalent comparison with the existing SC 38/US 501 corridor. We also recommend using aerial photography or more recent wetland inventories to determine the accuracy of the estimated impacts from the use of the NWI mapping layers that do not reflect current conditions in this case.

### **Preferred Alternative Impacts**

The applicant states that, using the Charleston District Standard Operating Procedures (SOP) to calculate impacts, 18,220 stream credits and 4,163 wetland credits are required to compensate for the proposed impacts to waters of the U.S. These credits were calculated using the September 2002 SOP, however, the October 2010 SOP was issued before the application was submitted and should therefore be used to calculate the appropriate credits needed. It appears that the project will impact State Heritage Preserve properties along with areas in Lake Swamp, all of which the EPA considers ARNIs. Impacts to these areas need to be discussed in detail including the avoidance and minimization utilized. All streams being impacted were categorized as impaired and given the lowest existing condition score possible. For the purposes of the SOP, a stream is defined as impaired based on these various stream conditions: the reach has been channelized or the entrenchment ratio and/or width/depth ratio at bankfull discharge is inappropriate for the stream type relative to the unimpaired stream condition; based on the reference reach data, the stream has degraded to a less desirable type; stream recovery is unlikely to occur naturally; the stream has extensive human-induced sedimentation; the stream has little or no riparian buffer with deep-rooted vegetation; and/or the stream has culverts, pipes, impoundments, or other in-stream manmade structures occur within 0.1 mile upstream or downstream. A large majority of the wetland impact sites were categorized as very impaired or impaired, and none were listed as fully functional. The definition of a very impaired wetland according to the SOP is: a site where many functions, typically attributed to the system type, have been lost due to site disturbances and where full functional recovery would require a major restoration effort. Therefore, in keeping with the SOP, the applicant needs to provide comprehensive information detailing the current stream and wetland conditions that would allow the impacted areas to meet these definitions of impairment.

## Mitigation

The applicant proposes to mitigate wetland and stream impacts for this project through buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites. This mitigation plan is not consistent with the 2008 Mitigation regulations which require applicants to look sequentially at mitigation banks, in-lieu fee programs, and permittee-responsible mitigation for required compensatory mitigation. It appears that credits from other banks are available for the impacted HUCs and these should be exhausted before permittee-responsible mitigation is considered.

The applicant's watershed description and site selection rationale for the wetland mitigation site is missing some important details. A good example of what is required in a watershed approach is given in the guidance from the U.S. Army Corps of Engineers, Kansas City District entitled, *Compensatory Mitigation Plan Requirements for Permittee Responsible Mitigation Projects*, January 2010. This guidance states:

*A. The most preferred permittee responsible compensatory mitigation plan incorporates a watershed approach to ensure that the proposed compensatory mitigation site and aquatic resource restoration plan supports the sustainability and/or the improvement of aquatic resources within the identified watershed. A landscape perspective is used to identify the types of aquatic resources that most benefit the affected watershed and how the proposed mitigation site is suited to the restoration of these aquatic resources.*

*B. In order to meet the watershed approach criterion, the permittee must define the identified watershed boundary and address how the mitigation proposal will benefit wetland and/or stream habitats, water quality, hydrologic conditions, and aquatic and/or terrestrial species needs within the identified watershed boundary.*

- 1. The permittee must identify and briefly discuss the historic losses and the current trends of losses of aquatic resources (i.e. wetland and streams) and other wildlife habitats within the watershed based on current and historic land use.*
- 2. Identify and briefly discuss water quality issues present within the watershed.*
- 3. Describe the immediate and the long-term needs of the watershed to improve both the wildlife habitats and the water quality and describe the suitability (technical feasibility) of the site to meet the needs of the watershed.*
- 4. Describe the historic and the current state of the mitigation site and the adjacent lands. In addition, describe the ecological suitability (physical, chemical and biological characteristics) of the site to achieve the objectives of the mitigation plan and to improve the conditions within the identified watershed.*
- 5. Identify and discuss the short-term and the long-term off-site threats (including water rights) within the watershed that may affect the wetland and the water quality services constructed at the mitigation site. Discuss how these threats are addressed in order to assure longevity of services at the site.*

The applicant's project goals for the wetland mitigation project include improving ground water quality, sediment reduction, and nutrient dilution. However, it appears that only vegetation

density and hydroperiod will be monitored. To determine the success toward meeting these goals, baseline data and success criteria should be established. The applicant plans to restore four types of wetlands: pine flatwoods, pine wet flatwoods, bottomland hardwoods, and bay forest. These communities have different vegetation types and densities but the only success criteria mentioned is 320 stems per acre at 3 year monitoring and 260 stems per acre at the 5 year monitoring. These criteria are inadequate in determining if the desired communities are established. Typical species composition and densities should be established for each wetland type and used as success criteria. Further, while the density at years 3 and 5 are given, no planting density is established. The measure of success for 260 stems per acre is very different depending on if the initial planting was 1,000 stems per acre versus 500 stems per acre. Also, the applicant uses the highest net improvement factor for all restoration, but the fully functional restoration of bottomland hardwood forests, bay forests, or pine flatwoods cannot be determined in a 5 year monitoring period. The applicant should either lower this net improvement score accordingly or extend the monitoring period.

The applicant's stream mitigation plan provides inadequate information to determine if the plan can be successful. The applicant needs to provide information for the existing stream including the drainage area, stream type, bankfull area and width, width to depth ratio, width floodprone area, entrenchment ratio, maximum depth at bankfull width, valley slope, bed material, etc. A reference reach should also be chosen and have the same factors measured. The applicant must then determine the expected measurements of these factors for the design reach and how they will be achieved including map plans showing the in-stream structures (cross vanes, j hooks, etc) and their placement. Nearly 59 percent of the stream restoration will be classified as Rosgen DA stream with the remainder being Class C. Information indicating that the natural stream channel followed this pattern (i.e. slope equals less than 0.5 percent for the areas Rosgen DA streams are restored) and a similar reference reach should be provided. The applicant needs to provide information to show that impacted streams are also Rosgen DA and Class C streams and that this mitigation is in-kind. The applicant needs to better describe the prescription to create the Rosgen DA streams, the success criteria to be used, and adaptive management in case the area does not form an anastomosed channel system, essentially becoming a wetland area.

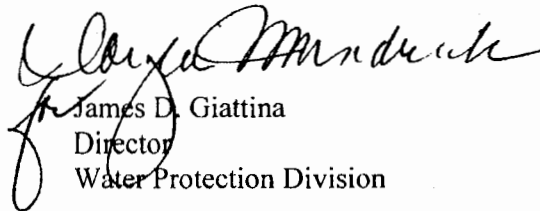
In order to have fully evaluated the proposed impacts and mitigation, EPA believes that site visits would have been useful before the comment period was over. EPA would like to take part in any visits that may be scheduled in the future.

Based on the above observations, EPA has determined that the project, as currently proposed, does not comply with the Section 404(b)(1) Guidelines and may have substantial and unacceptable adverse impacts on ARNIs. Therefore, we recommend denial of the project, as currently proposed. This letter follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.



Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Ms. Kelly Laycock, ORISE Intern, (Laycock.Kelly@epa.gov or 404-562-9132) or Ms. Jennifer Derby, Section Chief (derby.jennifer@epa.gov or 404-562-9401).

Sincerely,



James D. Giattina  
Director  
Water Protection Division

cc: Mr. Stephen Brumagin, USACE  
Mr. Travis Hughes, USACE  
Mr. Mark Leao, USFWS  
Ms. Pace Wilber, NMFS  
Ms. Susan Davis, SC DNR  
Ms. Vivianne Vejdani, SC DNR  
Mr. Mark Giffin, SC DHEC  
Mr. Chuck Hightower, SC DHEC



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February 11, 2011

Lt. Colonel Jason A. Kirk  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: Interstate 73, SAC 2008-1333-DIS

Dear Lt. Colonel Kirk:

This is in response to your request for comments on the above referenced joint public notice (JPN). South Carolina Department of Transportation (SCDOT) ("Applicant") seeks a permit to place fill, to construct, and to maintain bridges and culverts associated with the construction of a new four lane Interstate roadway approximately 80 miles in length on new alignment within wetlands adjacent to and within waters of the United States in South Carolina. The applicant proposes permanent placement of fill materials/bridges/culverts in a total of 4,643 linear feet of streams and 271.9 acres of wetlands, temporary clearing of 48.9 acres of wetlands, permanently clearing 17.1 acres wetlands, and excavation of 4.4 acres of wetlands..

The Environmental Protection Agency (EPA), Region 4 has partially reviewed the JPN, and supporting information supplied by the applicant dated January 2010. We would like to further evaluate the applicant's information and collect additional information related to the project and impacts. Due to the large scale and complexity of the project, EPA requests a 30-day extension of the comment period until March 30, 2011. Thank you for your consideration of this request. If you have any questions, please contact Kelly Laycock of my staff at 404-562-9132 or at [laycock.kelly@epa.gov](mailto:laycock.kelly@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer S. Derby", is written over a horizontal line. To the right of the signature, the word "for" is handwritten.

Jennifer S. Derby  
Chief  
Wetlands and Marine Regulatory Section

cc: See Enclosed List

**CC LIST:**

Send electronically:

Stephen Brumagin – USACE – [Stephen.A.Brumagin@usace.army.mil](mailto:Stephen.A.Brumagin@usace.army.mil)

Travis Hughes - USACE - [Travis.G.Hughes@usace.army.mil](mailto:Travis.G.Hughes@usace.army.mil)

Mark Caldwell- USFWS – [Mark\\_Caldwell@fws.gov](mailto:Mark_Caldwell@fws.gov)

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Susan Davis - SC DNR - [daviss@dnr.sc.gov](mailto:daviss@dnr.sc.gov)

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Heather Preston - SC DHEC - [prestohs@dhec.sc.gov](mailto:prestohs@dhec.sc.gov)

Chuck Hightower- SC DHEC – [hightocw@dhec.sc.gov](mailto:hightocw@dhec.sc.gov)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

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**APR 28 2011**

Lt. Colonel Jason A. Kirk  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Kirk:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The U.S. Environmental Protection Agency, Region 4, has reviewed the JPN, and supporting information supplied by the applicant dated January 4, 2011. Based on that review, EPA has found that the project does not comply with Section 404(b)(1) Guidelines, and we therefore recommend that the permit for the project, as currently proposed, be denied. Our concerns were documented in a letter dated March 28, 2011, and are incorporated here by reference.

**Alternative Analysis**

The applicant's preferred alternative is to construct a new four lane interstate roadway approximately 80 miles in length in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The applicant's preferred route runs parallel to SC 38/ US 501, a current four lane route. A high percentage of the preferred alternative route is new road and intuitively may cause greater impacts and fragmentation than utilizing an existing road corridor, including the SC 38/US 501. As an alternative to the applicant's preferred route, EPA highly recommends the use of the existing SC 38/US 501 road corridor that would remove the need for a new crossing of Aquatic Resources of National Importance (ARNI), including the State Heritage Preserve wetlands and streams, and the Lake Swamp area.

EPA recommends the consideration of this existing SC 38/US 501 route, along with phased up-grades, as the preferred alternative for the I-73 corridor, as it is an existing four lane highway with up-grade potential, and transects already degraded waters of the U.S. This recommendation is proposed as a lower impact alternative to the applicant's preferred alternative corridor. In a recent third party study dated March 11, 2011, provided to EPA and paid for by the Southern Environmental Law Center, a transportation analyst determined that the existing SC 38/US 501 route, with up-grades, would be the least impacting and least costly route of all that were evaluated.

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The third-party study also evaluated two additional options, including a route following the SC 9 corridor, and a route that would include a new connector from US 74 to SC Route 22. The US 501 and SC Route 9 corridors were both examined early in the National Environmental Policy Act process, by evaluating very wide corridors which resulted in estimates of large impacts. For this reason, they were both eliminated from further consideration. EPA, however, recommends a re-examination of these options using the narrower corridor width that was later used to evaluate the applicant's preferred alternative, to allow for an equivalent comparison with the existing SC 38/US 501 corridor. We also recommend using recent aerial photography and more recent wetland inventories to provide greater accuracy of the estimated impacts, instead of using the National Wetlands Inventory mapping layers that do not reflect current conditions in this case.

### **Preferred Alternative Impacts**

The applicant states that, using the Charleston District Standard Operating Procedures to calculate impacts, 18,220 stream credits and 4,163 wetland credits are required to compensate for the proposed impacts to waters of the U.S. It appears that the project will impact State Heritage Preserve properties along, with areas in Lake Swamp, all of which the EPA considers ARNIs. Impacts to these areas need to be discussed in detail including the avoidance and minimization utilized. All streams being impacted were categorized as impaired and given the lowest existing condition score possible. The applicant needs to provide comprehensive information detailing the current stream and wetland conditions that would cause the impacted areas to meet these definitions of impairment.

### **Mitigation**

The applicant's plan for mitigation through buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites is not consistent with the 2008 Mitigation regulations which require applicants to look sequentially at mitigation banks, in-lieu fee programs, and permittee-responsible mitigation for required compensatory mitigation. It appears that credits from other banks are available for the impacted hydrologic unit codes, and these should be exhausted before permittee-responsible mitigation is considered.

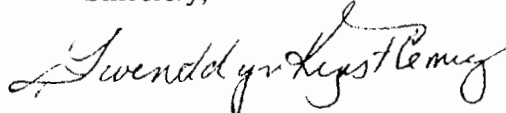
The applicant's watershed description and site selection rationale for the wetland mitigation site are missing some important details. A good example of what is required in a watershed approach is given in the guidance from the U.S. Army Corps of Engineers, Kansas City District entitled, *Compensatory Mitigation Plan Requirements for Permittee Responsible Mitigation Projects*, January 2010. Goals and success criteria for the wetland portion of the project mitigation need to be specifically matched to the wetland types being restored. The applicant's stream mitigation plan provides inadequate information to determine if the plan can be successful. The applicant needs to provide information for the existing stream, including the drainage area, stream type, bankfull area and width, width-to-depth ratio, width floodprone area, entrenchment ratio, maximum depth at bankfull width, valley slope, bed material, etc. A reference reach should also be chosen and have the same factors measured. The applicant must then determine the expected measurements of these factors for the design reach and how they will be achieved, including map plans showing the in-stream structures (cross-vanes, j-hooks, etc.) and their placement.

Based on the above observations, EPA has determined that the project, as currently proposed, does not comply with the Section 404(b)(1) Guidelines and will have substantial and unacceptable adverse impacts on ARNIs. Therefore, we recommend denial of the project, as currently proposed. This letter

follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.

Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, ORISE Intern, (Laycock.Kelly@epa.gov or 404-562-9132) or Ms. Jennifer Derby, Section Chief ([derby.jennifer@epa.gov](mailto:derby.jennifer@epa.gov) or 404-562-9401).

Sincerely,

A handwritten signature in cursive script, reading "Gwendolyn Keyes Fleming".

Gwendolyn Keyes Fleming  
Regional administrator

cc: Mr. Stephen Brumagin, USACE  
Mr. Travis Hughes, USACE  
Mr. Mark Leao, USFWS  
Ms. Pace Wilber, NMFS  
Ms. Susan Davis, SC DNR  
Ms. Vivianne Vejdani, SC DNR  
Mr. Mark Giffin, SC DHEC  
Mr. Chuck Hightower, SC DHEC



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JAN 07 2013

Lt. Colonel Edward P. Chamberlayne  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Chamberlayne:

This letter is in response to your request for comments on the above referenced joint public notice. The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The U.S. Environmental Protection Agency, Region 4, has reviewed the applicant's responses to our previous comment letters and we continue to have concerns about the proposed mitigation plan. As background, our concerns were previously documented in letters dated March 28, 2011, and April 28, 2011.

The applicant's plan for mitigation consists of buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites. The applicant's permittee-responsible compensatory mitigation plan for the 4,643 linear feet of stream impacts is not finished or available for review at this time and the EPA will comment on that portion of the plan when it is received.

The other permittee-responsible wetland mitigation proposed by the applicant is referred to as the Joiner Bay Wetland Mitigation Site. The Joiner Bay Mitigation is not on site, but is within the same 8 digit HUC as a majority of the impacts. The applicant proposes to restore 597.1 acres of wetland on the site. The plans will include 172.7 acres of wetland reestablishment, 424.4 acres of wetland rehabilitation, and 375.9 acres of buffer enhancement which will generate 2,399.9 wetland credits based on the applicant's use of the U. S. Army Corps of Engineers, Charleston District Standard Operating Procedure (SOP) "Guidelines for Preparing a Compensatory Mitigation Plan" October 7, 2010. The applicant's restoration plan includes road removal and plugging ditches to restore hydrology along with timber harvest and prescribed burning to restore native vegetation.

The EPA has concerns with the credit calculations the applicant has made. First, the applicant calculated a temporal loss factor of 5-10 years. The communities they are proposing to reestablish are forest communities which will not fully mature within that time frame. Accordingly, the EPA recommends that the maximum temporal loss factor of over 20 years be used. The applicant also considers all the



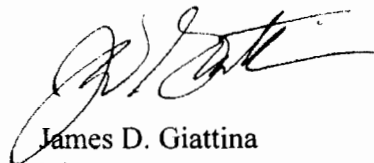
restoration as "in kind" mitigation. However, the majority of the communities proposed to be reestablished are pine savannah and streamhead pocosin, while the majority of the impacts are to bottomland hardwoods and wooded swamp. The EPA recommends that the "out of kind" factor in the SOP be applied to all acreage which is not categorized as the same type as impact sites. The applicant also considered all restoration within the same 8-digit Hydrologic Unit Code (HUC) as impact sites, but 26 percent of the impacts are in different HUCs than the proposed mitigation. This should be reflected in the credit calculations.

The applicant's plan also relies heavily on prescribed burning to reestablish the desired vegetation community in the restoration areas of the site. However, the applicant's proposed success criteria do not address how successful this restoration method will be and what criteria they will use to measure success. The EPA's detailed recommendation for success criteria has been enclosed to this letter (Enclosure A) and we recommend the applicant consider this or other similar approaches.

The EPA also has concerns with the long term management associated with the proposed mitigation required to maintain a pine wet flatwoods community. We request a detailed prescribed burning plan including timing and intensities of burns, the parties that will be responsible for burning the property in perpetuity, and adaptive management plans in case burning is not possible during some years. Further, we request details of long-term financial assurances that will provide moneys for burning and other maintenance in perpetuity.

Based on the above observations, the EPA has determined that the project, as currently proposed, does not have an adequate compensatory mitigation plan and therefore is inconsistent with the Section 404(b)(1) Guidelines and the 2008 mitigation rule. Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, (Laycock.Kelly@epa.gov or 404-562-9132) or Mr. Tony Able, Wetlands Regulatory Section Chief (able.tony@epa.gov or 404-562-9273).

Sincerely,



James D. Giattina  
Director  
Water Protection Division

Enclosure

cc: Mr. Stephen Brumagin, Mr. Travis Hughes  
U.S. Army Corps of Engineers

Mr. Mark Leao  
U.S. Fish and Wildlife Service

Mr. Mark Giffin, Mr. Chuck Hightower  
SC Department of Health & Environmental Control

Ms. Pace Wilber  
National Marine Fisheries Service

Ms. Susan Davis, Ms. Vivianne Vejdani  
South Carolina Department of Natural Resources

## Enclosure A

### I-73 SAC 2008-1333-DIS 3<sup>RD</sup> Recommended Success Criteria for Vegetation

Wetlands Regulatory Section  
U.S. Environmental Protection Agency, Region 4  
12-17-2012

We recommend the applicant use an approach that has been formulated by the Alabama-Mississippi Mitigation Banking Review Team for Wet Pine Flats. This team suggests using the Functional Capacity Index of the Plant community (FCI<sub>plant</sub>) derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M. M. (2002) "A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains."

Assessment of this function reflects the ability of a Wetland Assessment Area (WAA) to maintain a characteristic plant community composition and diversity. This is called the Functional Capacity Index or FCI. The Functional Capacity Index of the Plant community (FCI<sub>plant</sub>) is the average of the relative groundcover, subcanopy and pine composition as shown in the equation below. The Groundcover is the maximum of the herbaceous (Herb), native bunch grass (Nbg), or sedge (Sedges) scores. The wetland assessment area is an area of wetland within a bank that is relatively homogeneous with respect to the site-specific criteria used to assess wetland functions (i.e. hydrologic regime, vegetation structure, topography, soils, successional stage, etc.). The presence of invasive and exotic species (Exotics) reduces the groundcover functional capacity index as the aerial coverage of exotic species increases. Elimination of invasive species is preferred, however, less than 1% aerial coverage of exotic species is not reflected in the functional capacity index as long as control measures continue.

$$FCI_{\text{plant}} = (\text{Groundcover} + \text{Subcanopy} + \text{Pines}) \div 3$$

Where;

$$\text{Groundcover} = \text{Exotics} \times \left[ \text{MAX} \left( \text{Herb}, \text{Nbg}, \sqrt{\left( \text{Cypress} \times (\text{Sedges} + \text{Subc}) / 2 \right)} \right) \right]$$

The site-scale variables are assessed at one (1) fixed location and one (1) location chosen at random within each wetland assessment area (WAA) or 100ha (247 acres). Random monitoring plots should be located using a grid system and random number table. Monitoring will be assessed in four (4) nested plots at each location. A permanent pole placed vertically in the ground to mark the center of the nested plots should mark the center of the nested monitoring points; 1m<sup>2</sup> plot, 2m radius, 10m radius, and 100m radius. The center of the monitoring plots should be permanently marked, preferably with a metal pipe or a steel fence post.

Herb =        1m<sup>2</sup> plot: 1 point for each species below,  
                  2m radius: 0.5 points for each additional species  
                  Divide the mean herbaceous indicator score of each WAA by 8.0; for Cypress/Pine  
                  Savanna (if Cypress present) divide the mean indicator score by 7.0.

<i>Aletris spp.</i>	<i>Aristida spp.</i>	<i>Balduina spp.</i>	<i>Biglowia nudata</i>	<i>Carphephorus spp.</i>
<i>Chaptalia tomentosa</i>	<i>Coreopsis spp.</i>	<i>Ctenium aromaticum</i>	<i>Dichromena spp.</i>	<i>Erigeron vernus</i>
<i>Eriocaulon spp.</i>	<i>Erygium intergrifolium</i>	<i>Eupatroium leucolepis</i>	<i>Helianthus spp.</i>	<i>Lycopodium spp.</i>
<i>Muhlenbergia expansa</i>	<i>Rhexia spp.</i>	<i>Sarracenia spp.</i>	<i>Schizachyrium scoparium</i>	<i>Xyris spp.</i>

Nbg = Native Bunch Grasses - 2m radius: Combined % cover area of the following: *Ctenium* spp., *Muhlenbergia* spp., *Aristida* spp., *Sporobolus* spp., *Schizachyrium* spp.  
Divide cover by 0.50  
Average scores by WAA

Sedges = 2m radius: Combined % cover area of the following: *Carex* spp., *Sclaria* spp., *Rhynchospora* spp.  
Divide by 0.50  
Average scores by WAA

Cypress = Stems per hectare (2.47 acres). See alternative density calculation strategy below.\*  
Determine for density of pond cypress the following class sizes; (1)sapling >1m tall and less than 7.5 cm dbh (3 inches),  $x = \text{density}/250$  (if the resulting score is >1.0, reduce to 1.0), (2) midcanopy > 1 m tall and 7.5-15 cm (3-6 inches) dbh,  $y = \text{density}/50$  (if the resulting score is >1.0, reduce to 1.0), (3) canopy >15cm (6 inches) dbh,  $z = \text{density}/100$  (if the resulting score is >1.0, reduce to 1.0). Cypress score =  $(x + y + z)/3$ .  
Average scores by WAA

Pines = 10m radius: Measure the basal area of all pine species > 1m high. Score  $\geq 0 \leq 6.25$  sq.ft = 1.0, 6.25-12.0 = 0.5,  $\geq 12.0 = 0$  (Lewis and Teaford, 1995)

Subc = Subcanopy Vegetation - 10m radius: Count all stems at one meter in height even if they originate from same plant. If Subc < 200, then Subc = 1.0, If Subc is 201-300, then Subc = 0.5, If Subc > 300, then Subc = 0 (Modified HGM)

Exotics = 100m radius: Estimate % aerial coverage of all invasive species (i.e. *Sapium Sebiferum*, *Panicum Repens*, *Imperata Cylindrica*, etc.) If Exotics < 1% then Exotics = 1.0, If >1% then Exotics =  $(1.0 - (\% \text{ coverage})/10)$ .

\*For Cypress density, another way to determine density is determine the distance to the closest individual in each size class from randomly selected points in the WAA. To do this, at each center point, measure the distance in meters from the center point to the nearest sapling, midcanopy, and canopy stem of pond cypress. (Sample at least three points, more is better). Determine the average distance to individuals in each of three size classes. Calculate density as follows:  $\text{Density} = 10,000/[2 \times (\text{average distance})^2]$ .

We recommend that the applicant apply this method to a reference area and to the enhancement area for baseline data. We believe that the increase of species richness expected by the applicant, along with hydrological monitoring by establishing wells will be able to show if function lift occurs.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

July 29, 2014

Lt. Colonel John T. Litz  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Litz:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet (LF) of stream.

The U.S. Environmental Protection Agency Region 4 has reviewed the applicant's responses to our previous comment letters and we continue to have concerns about the proposed mitigation plan. As background, our concerns with the wetlands portion of the applicant's compensatory mitigation plan were previously documented in letters dated March 28, 2011, April 28, 2011 and January 7, 2013. Further, the EPA reviewed the applicant's stream mitigation plan dated July 24, 2013 and had concerns that were expressed in a letter dated September 11, 2013. The EPA received a package containing the applicant's proposed final wetland mitigation plan as well as their proposed final stream mitigation plan on July 14, 2014. After reviewing the submittals, the EPA continues to have concerns with both plans.

The applicant has indicated with the latest submittal that they are unable to provide additional mitigation opportunities to address current mitigation credit shortfall, identify long term stewards for the mitigation sites, nor provide long term financial assurance plans acknowledging the concerns the EPA has raised in the past. The plan as currently proposed has a 1,290 wetland credit shortfall. Therefore, with this information alone, the plan is inadequate and the project as current proposed should be denied. Further, long term stewards and long term financial assurances are among the 12 elements specified in the mitigation rule including: objectives, site selection, site protection instrument, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan and financial assurances. Therefore, the mitigation package is incomplete.

The EPA expressed many other concerns in our previous letters which have not been addressed with the applicant's submittal. These concerns are reiterated below.

The permittee-responsible wetland mitigation proposed by the applicant is referred to as the Joiner Bay Wetland Mitigation Site. The Joiner Bay Mitigation is not on site, but is within the same 8 digit HUC as a majority of the impacts. The applicant proposes an estimated 21.0 acres of wetland restoration through fill removal, 116.2 acres of effectively drained wetland restoration through ditch removal, 61.3 acres of partially drained wetland enhancement through ditch removal, 594.1 acres of hydrologic wetland enhancement through re-grading of silviculture bedding and vegetative restoration and 32.1 acres of wetland enhancement through prescribed burning which will generate 2,195.6 wetland credits based on the applicant's use of the U. S. Army Corps of Engineers (USACE), Charleston District Standard Operating Procedure (SOP) "Guidelines for Preparing a Compensatory Mitigation Plan" October 7, 2010.

The EPA has concerns with the credit calculations the applicant has made. The applicant states, "Hydrologic restoration provided by the Site are expected to replace those impacted as a result of the I-73 project within 10 to 20 years; therefore, a temporal loss factor of -0.3 was applied to these mitigation areas. Hydrologic and vegetative enhancement areas are expected to replace functions lost at the impact site within 5 to 10 years, therefore a temporal loss factor of -0.2 was applied to these areas. Finally, areas that are to undergo only a prescribed burn are expected to replace functions lost at the impact site within 0 to 5 years, therefore a temporal loss factor of -0.1 was applied to these areas. The EPA does not contest the temporal loss factor of -0.1 used in areas with a mature canopy where only prescribed burning is proposed. However, the other communities they are proposing to reestablish are forest communities which will not fully mature within that time frame. Accordingly, the EPA recommends that the maximum temporal loss factor of over 20 years be used. The applicant also considers all the restoration as "in kind" mitigation. However, the majority of the communities proposed to be reestablished are pine savannah and streamhead pocosin, while the majority of the impacts are to bottomland hardwoods and wooded swamp. The EPA recommends that the "out of kind" factor in the SOP be applied to all acreage which is not categorized as the same type as impact sites.

The applicant proposes that hydrologic success criteria will be based upon target hydrological characteristics including saturation or inundation within the top 12 inches of soil for a minimum of 7 percent (i.e., 19 consecutive days) of the growing season during average climatic conditions. We recommend that instead the success criteria be within 25 percent of the hydrological regime of reference wetlands. The EPA appreciates that vegetation success criteria in the proposal are those recommended by us for the pine savannah habitat. The applicant proposes to use the methodology derived by the Alabama-Mississippi Mitigation Banking Review Team for Wet Pine Flats as derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M.M. (2002) "A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains." While this method is acceptable for the pine savannah and mesic pine flatwood habitats, other vegetation success criteria should be specified for the bay forest, streamhead pocosin, and bald cypress-tupelo gum swamp habitats.

The EPA also has concerns with the long term management associated with maintaining a pine savannah community. We request a detailed adaptive management plan in case burning is not possible during some years. Further, we request details of long-term financial assurances that will provide moneys for burning and other maintenance in perpetuity.

The applicant's permittee-responsible stream mitigation plan is referred to as the Long Branch Mitigation Plan and is located approximately 6.2 miles from the applicant's preferred project site. The proposed mitigation site will restore approximately 2,543 LF of stream and enhance approximately 4,867 LF of stream along Long Branch, enhance approximately 5,565 LF of stream along Indian Pot Branch and restore approximately 1,632 LF along two unnamed tributaries (UT1 and UT2) that flow into Long Branch.

Using the USACE Charleston District 2010 Guidelines for Preparing a Compensatory Mitigation Plan SOP, the applicant calculates that 22,640 stream credits are required to compensate for the proposed stream impacts. The cumulative impact factor was calculated for each 11-digit HUC in which the impacts occur. The EPA appreciates that impacts are calculated for each watershed to more accurately capture mitigation needs. However, the SOP specifically states that the cumulative impact factor should be calculated for the total impacts of an entire project. Therefore, the EPA recommends these calculations be corrected by applying the appropriate factor.

While the EPA believes the proposed mitigation site has potential to generate stream mitigation credits, we have significant concerns with the plan as currently proposed. Our most significant concern is the lack of control the applicant will have on the stream reach. Over 4,000 LF of the project will only have protection and adequate riparian buffer on one bank of the stream due to current landowners being unwilling to participate in a conservation easement. This limits the ability of the applicant to ensure restoration and enhancement of the stream is successful. The applicant proposes to improve water quality and to enhance the riparian vegetation by planting desirable species and removing exotic, invasive species. All of these plans could be compromised by activities in the uncontrolled, riparian corridor.

The EPA also has concerns with water quality on the mitigation site and the lack of an adequate water quality monitoring plan. The proposed streams enter the site via highly impacted tributaries from agricultural fields. There are also multiple ditches from agricultural areas which drain into the streams. We recommend a robust monitoring plan including stations where the streams enter and exit the site, at all confluences on site and at the point of discharge of all drainage ditches into mitigation streams. We recommend collecting baseline data at these stations as well as collecting data throughout the monitoring period.

The proposed mitigation plan also lacks definitive performance standards tied to stated objectives. The applicant states that water quality improvement is an objective of the proposed mitigation. However, there are no performance standards to measure the success of meeting this objective. Exotic plant removal is a major component of the applicant's vegetation enhancement plan but it also lacks a performance standard to measure success. We recommend that exotic plant removal be considered successful if exotic vegetation remains below 1 percent of the total vegetation cover for the length of the monitoring period. While the applicant provides planting survival performance standards, there are no standards to measure the success of maintaining the species diversity of the planting plan. The applicant states that many factors will be visually monitored, including: bank stability, condition of in-stream structures, channel migration, headcuts, live stake mortality, impacts from invasive plant species or animal species and condition of pools and riffles. It is unclear if performance standards will be established for these factors, thus more details are needed.

Based on the above observations, the EPA has determined that the project, as currently proposed, does not have an adequate compensatory mitigation plan and therefore is inconsistent with the Section 404(b)(1) Guidelines and the 2008 Mitigation Rule and should be denied. Thank you for the opportunity

to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, at laycock.kelly@epa.gov or (404) 562-9132 or myself at able.tony@epa.gov or (404) 562-9273.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tony Able', written in a cursive style.

Tony Able  
Chief  
Wetlands Regulatory Section

**CC LIST: I-73 SAC 2008-1333-DIS**

Send electronically:

Stephen Brumagin – USACE – Stephen.A.Brumagin@usace.army.mil  
Travis Hughes - USACE - Travis.G.Hughes@usace.army.mil  
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# SOUTHERN ENVIRONMENTAL LAW CENTER

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July 5, 2012

## **Via US Mail and E-Mail**

Lieutenant Colonel Edward Chamberlayne  
Commander  
U.S. Army Corps of Engineers  
Charleston District  
69A Hagood Avenue  
Charleston, SC 29403-5107  
*Edward.p.chamberlayne@usace.army.mil*

**Re: Application for Section 404 Permit for I-73 Project in South Carolina (P/N #2008-01333-DIS)**

Dear Colonel Chamberlayne:

On March 28, 2011, the Southern Environmental Law Center ("SELC"), on behalf of the Coastal Conservation League; the Sierra Club, South Carolina Chapter; and Christine Ellis, Waccamaw Riverkeeper, Winyah Rivers Foundation, submitted comments concerning the U.S. Army above-referenced joint public notice ("JPN") issued by the Charleston District of the Corps of Engineers ("Corps") on January 26, 2011. With this letter, we are supplementing our initial comments with the submission of two additional reports. These reports include: (1) an Aerial Photographic Analysis Comparing Aquatic Impacts of S.C. 38/U.S. 501 Upgrade with Proposed I-73; and (2) an Economic Analysis of I-73 and the Grand Strand Expressway Alternative. A copy of each report is included with this letter.

As described in more detail below, these two reports, along with the report prepared by Smart Mobility we submitted with our original comments, demonstrate that upgrading portions of S.C. 38 and U.S. 501 to an expressway between I-95 and the Conway Bypass (S.C. 22) (also referred to as the "Grand Strand Expressway" or "GSX" alternative) is the least environmentally damaging practicable alternative under the Clean Water Act to meet the identified underlying purpose for this project. We request a meeting with you and your staff to discuss these reports and their significance for the I-73 proposal.

As you are well aware, pursuant to the Clean Water Act, the Corps must deny a Section 404 permit "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). In our previous comments, we explained that the evaluation process for I-73 in South Carolina has been

artificially constrained to prohibit meaningful consideration of alternatives that would consist largely of upgrading already existing roadways, such as S.C. 38 and U.S. 501.

The Clean Water Act clearly provides that an applicant for a Section 404 permit for a non-water-dependent project, such as this, must “clearly demonstrate[ ]” that no practicable alternatives exist that do not require a discharge into wetlands or other special aquatic sites. 40 C.F.R. § 230.10(a)(3). It became apparent, however, after we submitted our comments on the JPN that the S.C. Department of Transportation (“SCDOT”) is declining to undertake a thorough, timely examination of an upgrade alternative. Accordingly, we felt it necessary to undertake these analyses ourselves for your consideration. Although upgrades were considered early in the National Environmental Policy Act (“NEPA”) process, they were discarded at a preliminary stage based on inadequate information and faulty assumptions. In addition, the meetings that took place during the NEPA phase of the review for this project did not constitute a formal merger process such that the Corps or other agencies would be bound by the alternative selected in the Record of Decision.

We have completed two additional studies bearing on your least environmentally damaging practicable alternative determination since the submission of our comments in March 2011, including the Smart Mobility report, which established the cost and engineering feasibility of an upgrade alternative. The first is a report entitled “Aerial Photographic Analysis Comparing Aquatic Impacts of S.C. 38/U.S. 501 Upgrade with Proposed I-73” (the “Aerial Photographic Analysis”), which was prepared by Donley E. Kisner. This report relies on aerial photographic analysis to quantify the wetlands that would be impacted by an upgrade to an expressway, or even an interstate, for portions of S.C. 38 and U.S. 501 between I-95 and the Conway Bypass (S.C. 22). Using either a three-hundred-foot wide footprint, or a two-hundred-foot wide footprint, the analysis demonstrates that the number of wetland acres that would be impacted by upgrading the existing highway corridor would be significantly less than the amount of wetlands that would be impacted by I-73. According to the SCDOT, the construction of I-73 between I-95 and the Conway Bypass would impact 313 acres of wetlands whereas upgrading the existing corridor would impact approximately 119 acres of wetlands based on a three-hundred-foot wide footprint and approximately 50 acres of wetlands based on a two-hundred-foot wide footprint. Aerial Photographic Analysis at 3.

Similarly, according to the Corps, the construction of this same segment of I-73 would include 22 stream crossings totaling 3,860 linear feet of stream disturbance. Conversely, the number of new stream crossings that would be impacted by the construction of the GSX is zero. Aerial Photographic Analysis at 4.


In addition to involving far fewer aquatic impacts, the upgrade alternative is clearly practicable. See 40 C.F.R. § 230.10(a)(2) (stating an alternative to discharge to a wetland “is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose”). According to the Economic Analysis of I-73 and the Grand Strand Expressway Alternative prepared by Miley & Associates (the “Miley Report”), the GSX alternative “offers substantial economic benefits at *one-tenth of I-73’s estimated \$1.4 billion cost* and would result in improved access to the Myrtle Beach tourism market.” Miley Report at 2 (emphasis added). The Miley Report also explains

that economic benefits from the upgrade alternative would be realized sooner than with the proposed I-73, would create thousands of jobs, and would save businesses along the existing routes. The report also confirms that the other identified purposes that have been advanced for the I-73 proposal, such as mobility, would also be met through an upgrade option.

Moreover, it is the new location interstate that is the most *impractical* of all alternatives before the Corps. I-73 is simply not realistic from a fiscal perspective. Not only does I-73 carry an exorbitant price tag, but there is no financial plan for the project other than the hope for future earmarks. And, strong bipartisan opposition to earmarks in Congress further calls into question the feasibility of I-73 as evidenced by the lack of earmarks in the recent reauthorization of the federal transportation law.

In sum, the Grand Strand Expressway would have far less impacts on the aquatic environment and is substantially more cost effective than the construction of the proposed I-73 in meeting the underlying purpose for the project. We trust that you and your staff will find these reports helpful for purposes of your ongoing evaluation under the Clean Water Act, and we look forward to the opportunity to meet with you to discuss these analyses in greater detail.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. David Farren', with a large, stylized flourish at the end.

for J. David Farren  
Senior Attorney

Christopher K. DeScherer  
Senior Attorney

Enclosures

cc: Stephen A. Brumagin, USACE  
Heather Preston, SC DHEC  
Kelly Laycock, EPA  
Robert Lee, FHWA  
David Rackley, NMFS, NOAA Fisheries  
Prescott Brownell, NMFS, NOAA Fisheries  
Mark Caldwell, USFWS  
Ronnie Feaster, NRCS  
Secretary Robert St. Onge Jr., SCDOT  
Mitchell Metts, PE, SCDOT  
Ron Patton, SCDOT  
Danny Isaac, SCDOT Commission  
J. Craig Forrest, SCDOT Commission  
R. Eddie Adams, SCDOT Commission

John P. Edwards, SCDOT Commission  
Harrison Rearden, SCDOT Commission  
Clifton Parker, SCDOT Commission  
W.B. Cook, SCDOT Commission  
Sarah Nuckles  
Bob Perry, SCDNR  
Chuck Hightower, SC DHEC DWQ  
Barbara Neale, SC DHEC Ocean and Coastal Resources Management  
David P. Kelly, SC Department of Archives and History  
George Estes, SC Department of Parks, Rec. & Tourism  
Jon Boettcher, SC Emergency Management Division  
Ed West, SC Department of Commerce  
Reggie Daves, Waccamaw Audubon Society  
Norm Brunswig, SC Audubon Society  
Ben Gregg, SC Wildlife Federation  
Bunny Beason, Wildlife Action, Inc.  
Nancy Cave, Coastal Conservation League  
Barbara Zia, SC League of Women Voters  
Peggy Brown, SC League of Women Voters  
Brad Dean, Myrtle Beach Area Chamber of Commerce  
Annette Fisher, Georgetown County Chamber of Commerce  
Christine Ellis, Waccamaw Riverkeeper for Winyah Rivers Foundation  
Samantha Siegel, SC Sierra Club  
Kurt Henning, SC Sierra Club

# South Carolina Department of Natural Resources

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John E. Frampton  
Director  
Robert D. Perry  
Director, Office of  
Environmental Programs

March 28, 2011

LTC Jason A. Kirk, PE  
U.S. Army Corps of Engineers  
Charleston Regulatory Office  
69-A Hagood Avenue  
Charleston, South Carolina 29403

Ms. Heather Preston  
SC Department of Health and Environmental Control  
Bureau of Water  
2600 Bull Street  
Columbia, South Carolina 29201

REFERENCE: P/N # SAC-2008-1333-DIS SC Department of Transportation

Dear Col. Kirk and Ms. Preston,

Personnel with the South Carolina Department of Natural Resources (DNR) have reviewed the above referenced proposed project and offer the following comments:

The proposed Interstate-73 (I-73) project begins at the North Carolina state line near Bennettsville and ends at SC Highway 22 near Conway. The project corridor would be approximately 80 mi long and would cross through Marlboro, Dillon, Marion and Horry counties. I-73 is proposed to be a high-speed, fully controlled-access roadway with interchanges, frontage roads and overpasses to provide access and maintain existing traffic patterns. The roadway would include 4 travel lanes with a grassed median. The right-of-way would be 300 ft wide for most of the project corridor and 400 ft wide where frontage roads are needed. The project would involve 212 separate crossings of streams, wetlands and open water bodies impacting a total of 4,643 linear ft of streams and 342.3 a of wetlands and open waters.

DNR staff served on the Agency Coordination Team (ACT) for I-73 since that process was initiated in June 2004. The ACT determined that I-73 should be evaluated in separate Environmental Impact Statement (EIS) documents covering the southern segment (I-95 to SC Highway 22) and the northern segment (NC state line to I-95). DNR staff provided comments and input throughout the process and consistently stated the primary natural resource concerns associated with the proposed roadway are habitat fragmentation, the crossing of the Little Pee Dee River and adjacent wetlands, and the need for landscape scale mitigation that adequately compensates for all project impacts.

DNR appreciates the efforts of the South Carolina Department of Transportation (DOT) to minimize wildlife habitat fragmentation impacts by shifting the proposed alignment to be adjacent to existing road crossings at the Little Pee Dee River and Lake Swamp. However, there are numerous new alignment crossings of streams, wetlands, adjacent riparian and upland edge habitat areas throughout the project corridor that constitute a major fragmentation of habitat across the entire Pee Dee Region. DOT previously indicated that the use of bridges, over-sized culverts and floodplain culverts may be part of a solution to address habitat fragmentation impacting small to medium-sized species; however, DNR submits that the overall number and dimensions of the bridges and culverts proposed in the public notice will not adequately address this issue. Furthermore, DNR is particularly concerned about the fragmentation of habitat for black bear (*Ursus americanus*) and other large mammals and the potential for increased automobile/wildlife collisions resulting in unnecessary wildlife mortality and human injury or death.

The public notice indicates the Little Pee Dee (LPD) River would be crossed immediately downstream of the existing SC 917 bridge by means of twin 1053 ft bridges consisting of 9 spans with each span extending 117 ft. The LPD River beginning upstream of the project at the confluence with the Lumber River and extending downstream to the confluence with the Great Pee Dee River is classified as Outstanding Resource Waters (ORW) by the South Carolina Department of Health and Environmental Control (DHEC). The proposed bridges will collect vehicular pollutants including hydrocarbons and heavy metals that then will be discharged in stormwater during rain events. The stormwater from overland roadways typically is filtered through grassed swales and other vegetated areas prior to discharge to adjacent waterbodies; however, bridges must be properly designed to collect and filter stormwater prior to discharge to prevent water quality impacts. DNR recommends that there should be no direct discharges of untreated stormwater from the proposed bridges to the waters of the LPD to protect the outstanding water quality, existing uses and habitat values of the river and adjacent wetlands.

The LPD also provides maturation and nursery habitat for the federally endangered shortnose sturgeon (*Acipenser brevirostrum*), and Atlantic sturgeon (*Acipenser oxyrinchus*), a federal candidate species. DOT agreed during the EIS process to implement a seasonal moratorium for all in-water work between February 1 and April 30, and that work would not impede more than 50 % of the river channel during the months of January-April. DNR recommends that a formal consultation should be completed between DOT and the National Marine Fisheries Service prior to permit issuance.

DOT has proposed a conceptual mitigation plan to compensate for the unavoidable wetland and stream impacts associated with this project. This mitigation plan includes the Brittons Neck Stream Mitigation Site in Marion County, the Joiner Bay Wetland Mitigation Site in Horry County and the use of the remaining credits at the Sandy Island Mitigation Bank in Georgetown County. The Brittons Neck site is 32 a in size and would involve restoration of approximately 4,249 linear ft of ditched stream channel flowing through an existing agricultural operation. The Joiner Bay site is 922 a in size and would involve restoration of 777 a of wetlands impacted by historical ditching and conversion to commercial planted pine monoculture.

DNR has numerous concerns with both proposed compensatory mitigation sites. The proposed Brittons Neck Site is composed of a stream segment that in the context of mitigation for I-73 landscape scale impacts, makes little sense from either an ecological or a watershed perspective. The mitigation site boundary appears to have been arbitrarily based on meeting minimum required buffer widths without considering the current or historic ecological conditions of the site. Historic aerial photography and current soils information indicate the stream proposed for restoration was likely part of a coastal plain stream/wetland/sand ridge complex that extended beyond the site boundaries into current agricultural areas. This is supported by information included in the mitigation document stating the majority of the mitigation site and adjacent farmland was classified by the Natural Resources Conservation Service in 1991 as prior converted wetlands. The soils on the site are mapped as Cantey, a hydric soil, with a few small areas of other soil types that have hydric inclusions (Centenary, Persanti and Tawcaw-Chastain). These hydric and hydric-inclusion soils also continue across the mitigation site boundary into areas proposed to remain as agricultural fields and pasture. Therefore, it appears the proposed mitigation site will not include adequate upland buffers as required by the United States Army Corps of Engineers Charleston District Standard Operating Procedure (SOP) for stream restoration credit. The areas adjacent to streams proposed for restoration that are prior converted wetlands should be restored to wetlands and upland buffers then should be established and enhanced as necessary in the uplands adjacent to these wetland areas. The mitigation plan describes the final state of the upper portions of the stream restoration areas (UT 1 North and UT 2) as being braided streams. The SOP requires that braided streams be treated as wetlands and credits generated should be calculated in acres. This will significantly reduce the stream restoration credits generated by this site although with adequate upland buffers these areas could generate additional wetland credits.

DNR has similar concerns with the proposed Joiner Bay Site although this site is difficult to evaluate since a map depicting the relative locations of the proposed restoration, enhancement and upland buffer areas was not included in the mitigation plan. The project description and mitigation worksheet indicate the site will be restored to streamhead pocosins, pine savannas, bay forests and pine flatwoods. A soils map was included in the mitigation package, and all the soils on the site are hydric including Nansemond loamy fine sand, a partially hydric soil. The acreage of the Nansemond soils on the site (185.1 a) also corresponds to the acreage proposed for upland buffers in the worksheet so it is assumed that this soil type corresponds to the areas proposed to be upland buffers (e.g., pine flatwoods). DNR is concerned that without adequate upland buffers, adjacent land uses could have adverse impacts on the proposed restoration and, conversely, that the proposed restoration potentially could impact adjacent landowners. The site is bounded on the south by Joyner Swamp Road for approximately 6,500 linear ft and on the northeast by Watts Road for approximately 4,000 linear ft. Road maintenance, roadside ditches and potential development across the roadways from the site could adversely impact the restoration areas while hydrological restoration of the site could possibly cause flooding of roads and adjacent areas. In addition, the site is bounded on the southeast by what appear to be prior converted agricultural fields that are extensively ditched. This area also includes a large canal/linear pond immediately adjacent to the mitigation site and connecting to the off-site agricultural drainage ditches. Depending on hydrology, this canal/pond and ditch system could



be a significant impact to the mitigation site by draining the adjacent wetlands or by run-off from the off-site agricultural fields to the mitigation site. DNR submits that the upland areas on the site do not appear to be in locations that provide adequate buffer protection for the proposed wetland restoration and enhancement areas with the exception of some portions of the property along Joyner Swamp Road.

On April 10, 2007 the ACT unanimously approved a plan to address the compensatory wetland mitigation needs of the I-73 Project. The approved plan stated that *an adequate mitigation plan for aquatic resource impacts will achieve the following goals:*

1. *A landscape scale mitigation approach, with a goal of no net loss of habitat and wetlands.*
2. *Direct public benefits through public ownership and public use of the mitigation property.*
3. *Generate sufficient mitigation credits to offset the impacts to wetlands and streams as calculated by using the Charleston District SOP as published, and calculating the required credits independently for each 11 digit hydrologic unit in the road corridor. The required credits for all watersheds will be summed to determine the total project required credits.*
4. *Debit the Sandy Island Mitigation Bank for all remaining credits in an amount determined to be appropriate by the agencies in accordance with the terms of the banking agreement.*

DNR submits that neither the Brittons Neck Site nor the Joiner Bay Site is appropriate or adequate to mitigate for the substantial landscape scale impacts associated with the construction of I-73 and do not meet the stated goals of the ACT. Neither of the sites provides landscape scale mitigation due to the lack of upland buffers, incompatible adjacent land use issues and the segmented, piecemeal configuration of the sites (ACT Goal 1). Neither of the sites has the potential for more than minimal public access and consequently neither is appealing for public ownership (ACT Goal 2). The Brittons Neck Site does not provide adequate stream mitigation credits after subtracting the braided stream credits and the Joiner Bay Site may not provide sufficient wetland credits given the lack of adequate upland buffers and questionable hydrology (ACT Goal 3).

In closing, the proposed roadway will have significant natural resource impacts including the crossing of an ORW river, over 200 stream and wetland crossings, and the fragmentation of habitat across a large portion of the State. Significant impacts likewise will require significant compensatory mitigation in addition to the direct costs of constructing a new roadway. DNR recommends the applicant reconsider the use of existing road corridors to the greatest extent practicable. This could satisfy the stated needs of the project while greatly reducing habitat fragmentation and impacts to wetlands and could reduce the substantial costs associated with compensatory mitigation. In addition, upgrading and improving existing roadways in established transportation corridors that are adjacent to economic centers could enhance local economic development and reduce construction costs thereby saving tax dollars during a time of severe state and federal budget limitations.

LTC Jason A. Kirk and Ms. Heather Preston  
P/N # SAC-2008-1333-DIS SC Department of Transportation  
March 28, 2011

For these reasons DNR recommends that the proposed permits not be issued until the concerns and recommendations outlined herein have been adequately addressed.

If your office should require any additional information regarding comments on the proposed project, please contact Greg Mixon at [mixon@dnr.sc.gov](mailto:mixon@dnr.sc.gov) or at 803.734.3282.

Sincerely,



Bob Perry  
Director, Office of Environmental Programs

c: Bob Lord – USEPA  
Bob Lee – FHWA  
Patrick Tyndall – FHWA  
Pace Wilber – NMFS  
Jaclyn Daly – NMFS  
Tina Hadden – USACE  
Travis Hughes – USACE  
Steve Brumagin - USACE  
Jay Herrington – USFWS  
Mark Caldwell – USFWS  
David Kelly – SCDAA  
Randy Williamson – SCDOT  
Mike Barbee – SCDOT  
Mark Giffin – SCDHEC  
John Frampton  
Don Winslow  
Greg Mixon



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



March 16, 2011

Lt. Colonel Jason A. Kirk  
District Engineer  
US Army Corps of Engineers  
69A Hagood Street  
Charleston, SC 29403-5107

Re: P/N SAC-2008-1333-DIS, I-73, Horry County, SC  
FWS Log No. 42410-2011-CPA-0056

Attn: Steve Brumagin

Dear Colonel Kirk:

The U.S. Fish and Wildlife Service (Service) has received the public notice dated January 26, 2011, for the proposed construction of a new interstate, designated I-73, through various counties in South Carolina. The South Carolina Department of Transportation (SCDOT) has requested this Department of the Army permit pursuant to section 10 of the Rivers and Harbor Act of 1899, and sections 401 and 404 of the Clean Water Act. This report is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and section 7 of the Endangered Species Act (Act), as amended (16 U.S.C. 1531-1543).

In brief, the I-73 project will include: the placement of fill materials, bridges and culverts in a total of 4,643 linear feet of streams and 271.9 acres of wetlands; temporary clearing of 48.9 acres of wetlands; permanently clearing 17.1 acres wetlands; and excavation of 4.4 acres of wetlands. This application indicates that the project will impact a total of 23 separate streams, 166 separate Waters of the U.S. including wetlands, and 23 open water features at various locations in Marlboro, Dillon, Marion, and Horry Counties beginning at the NC/SC state line near Bennettsville in Marlboro County and extending southeast to its intersection with SC 22 near Conway, South Carolina.

The proposed Conceptual Mitigation Plan for this project includes three sites to address the I-73 mitigation needs of SCDOT. The first site, Joiner Bay, is a landscape scale wetlands restoration project with multiple wetland types matching the various impacted habitats along the I-73 corridor. The site is located two miles from the I-73 Preferred Corridor in western Horry County

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within the same watershed containing the majority of the wetland impacts. The second site, Brittons Neck, is a coastal plain stream restoration site located within the watershed. The third site is the Sandy Island Mitigation Bank. SCDOT will utilize the remaining 1,500 credits at Sandy Island Mitigation Bank as part of this Conceptual Mitigation Plan.

Personnel from the Service and other federal, state and local agencies as well as stakeholders have been involved in the planning and development of the I-73 for several years. Service personnel attended multiple meetings and site visits to review potential corridors and impact compensation locations. During alternative corridor reviews, the Service identified concerns and provided numerous recommendations intended to minimize or reduce impacts to wetland and federally protected trust resources. Many of the Service's recommendations were incorporated into the preferred alternative as described in the two Final Environmental Impact Statement (EIS) documents published for the northern and southern project phases.

Although two EIS documents were developed, SCDOT has submitted one permit application for the entire project. The notice describes minor alignment changes to I-73 which were made following a re-evaluation of the project and a separate value engineering study. As a result, the revised project includes a net increase in land area impacted, however, net impacts to wetland resources diminished by approximately one quarter of an acre. Upon review of these modifications Service personnel found no additional areas of concern and offer no further comments at this time regarding the minor alignment changes. However, the Service is concerned about several of the environmental commitments as proposed in the public notice.

SCDOT has identified several borrow sites near the proposed alternative. Even though no wetland delineations have been performed on these sites, SCDOT has stated that they are sufficient in size so that impacts to wetland resources could be avoided. We find this assumption to be hasty and recommend that SCDOT develop a project plan detailing use of the borrow sites allowing resource agencies an opportunity to evaluate potential long-term impacts to the area.

SCDOT has committed to reduce the likelihood of invasive species gaining a foothold in disturbed areas. However, no plans or descriptive process was provided in the public notice indicating how this will be accomplished. We recommend SCDOT develop an invasive species control and monitoring plan for all areas disturbed during the life of this construction project.

As committed by SCDOT, temporary roads that may be placed in wetlands during bridge construction will be removed upon completion of each bridge and the impacted area will be reseeded with native seed mixes. Bridge construction is a long-term process and may encompass several years. This translates into a significant temporal loss of functions and values the wetland resource provides for the benefit to the surrounding area. Further, this temporal loss accrues until the reseeded area reaches ecological maturity. The added functional loss over time may be significant especially if the wetland affected is a mature bottomland hardwood resource. To offset the temporal loss, we believe appropriate compensation should be required prior to the action taking place. We also recommend SCDOT compliment the reseeded activities by planting native seedlings, where appropriate, to hasten the full recovery of the affected wetland resource.

Prior to the public notice, the Service received a copy of the proposed mitigation plan from the applicant. Service personnel attended the applicant sponsored site visit to review the proposed mitigation site. At this time, the Service does not offer comments on specific aspects of the proposed plan. However, we do recommend the plan be finalized and reviewed by resource agencies prior to approval of the I-73 project. We also recommend all restoration activities begin and preferably be completed prior to commencement of the I-73 construction activities.

Upon review of the public notice the Service concurs with the Corps' determination that this proposed action may affect, but will not adversely affect the Kirkland's warbler or any other threatened or endangered species known to occur in the Counties encompassed by the proposed project. Further, no critical habitat has been designated within the project area. In view of this, we believe that the requirements of section 7 of the Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if (1) new information reveals impacts from this identified action may affect listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is designated that may be affected by the identified action.

The Service appreciates the opportunity to provide comments on this proposed project. If you have any questions on the Service's comments please contact Mark Caldwell of this office at (843) 727-4707 ext. 215.

Sincerely,



- Jay B. Herrington  
Field Supervisor

JBH/MAC

Winyah Group  
SC Chapter-Sierra Club  
P O Box 927  
Murrells Inlet, SC 29576

May 6, 2011

Secretary, Robert J. St. Onge, Jr  
The South Carolina Department of Transportation  
Attn: SCDOT Communications  
955 Park Street  
P.O. Box 191  
Columbia, SC 29202-0191  
Re: I-73 SAC 2008-1333-DIS

Dear Secretary St. Onge,

I am writing on behalf of the Executive Committee of the Winyah Group to urge a revision to the proposed Interstate 73 highway plans for Horry County, South Carolina.

The Winyah Group is a local group of the South Carolina Chapter of the Sierra Club. We represent over three hundred and fifty individual members in Horry and Georgetown Counties.

Our Group has been working to conserve, protect, and maintain the vitality and integrity of wetlands and riparian lands within our boundaries. The Highway as proposed would degrade some of these vital areas.

Our Group is in favor of economic development of the region and adequate transportation routes to foster that development. This development should not be at the expense of depleting or degrading scarce environmental resources. It should be pointed out that outdoor recreational amenities also foster economic health. As stated in a 2009 study of the economic impact of South Carolina's natural resources by the Division of Research of the Moore School of Business at the University of South Carolina, outdoor recreational amenities along the coast of SC, i.e. fishing, hunting, wildlife viewing, beaches account for \$3.5 billion in added gross domestic product, supporting 81,000 jobs.

We are first and foremost in favor of routes which would avoid or minimize impacts to wetlands and riparian lands. If mitigation is required, we would favor projects near the impacted areas that are greater in both area and quality than those impaired, over projects in other counties. United States Army Corps of Engineers' (USACE) stated priority for wetland protection is, in order: avoidance; if not avoidance, then on-site mitigation; if not on-site mitigation, then off-site mitigation. The USACE Charleston District's Standard Operating Procedure is to place mitigation *within the impacted watershed*.

The South Carolina Department of Transportation promised an exemplary and model mitigation effort for any perceived impacts within the proposed highway's corridor. We are totally underwhelmed by the proposed mitigation. Sandy Island mitigation in Georgetown County is not of equal weight with the disturbances which will occur in the proposed

highway's corridor. It is too little, and too far away to make up for the project's enormous impacts on our state's wetlands here, and in neighboring Marlboro, Dillon and Marion counties and does not meet USACE's requirements and guidelines.

Please honor your commitments by revising the route to reduce the project's environmental consequences or provide better mitigation for the impairments to our natural resources that this highway will cause.

Sincerely,



Bo Ives  
Chairman

cc: US Senator Lindsey O. Graham  
US Representative Tim E. Scott  
Stephen Brumagin, USACE  
✓ James Giattina, USEPA  
Danny Isaac, Chairman, SCDOT Commission  
Bob Perry, SCDNR  
Mark Griffin, SCDHEC  
Nancy Cave, SCCCL  
Bunny Beeson, Wildlife Action  
Kurt Henning, SC Sierra Club





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
263 13<sup>th</sup> Avenue South  
St. Petersburg, Florida 33701-5505  
(727) 824-5317; FAX (727) 824-5300  
<http://sero.nmfs.noaa.gov/>

March 25, 2011

F/SER47:JD/pw

(Sent via Electronic Mail)

Lt. Colonel Jason A. Kirk, District Engineer  
Charleston District, Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Attention: Stephen Brumagin

Dear Lt. Colonel Kirk:

NOAA's National Marine Fisheries Service (NMFS) reviewed public notice 2008-1333-DIS, dated January 26, 2011. The South Carolina Department of Transportation (SCDOT) requests authorization from the Department of the Army to place fill and construct and maintain bridges and culverts along an eighty (80) mile corridor in South Carolina. The purpose of the proposed project is to construct a new I-73 interstate from SC 22 in Horry County to the NC/SC state line northeast of Bennettsville in Marlboro County; the entire interstate, once completed, would connect to Sault Ste. Marie, Michigan. The Charleston District determined that no essential fish habitat (EFH) occurs within the portion of the proposed I-73 corridor addressed by this public notice; NMFS agrees with this determination and, accordingly, offers no EFH conservation recommendations. As the nation's federal trustee for the conservation and management of marine, estuarine, and anadromous fishery resources, the following comments and recommendations are provided pursuant to our authorities under the Fish and Wildlife Coordination Act.

*Project Description*

The proposed work consists of constructing a new four-lane interstate on a new alignment in South Carolina. The project includes construction of 75.3 miles of roadway, interchanges, and over/under passes, improving existing roadways at the interchanges and over/under passes, and constructing new bridges over multiple rivers, creeks, swamps, and unnamed tributaries. Frontage roads, entrance/exit ramps, storm water facilities, grassed medians and shoulders, and barrier fences would also be constructed in a manner standard to interstate design projects.

*Impacted Habitat within the Action Area*

NMFS biologists have participated in a number of interagency meetings for this project and provided comments on the I-73 Draft Environmental Impact Statement (EIS) on September 11, 2007, and Final EIS for the Northern Corridor on September 22, 2008. We have expressed concern regarding impacts to rivers and streams utilized by NOAA trust resources. In particular, the Little Pee Dee River and its perennial tributaries provide maturation and nursery habitat for diadromous fish, including American



shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), hickory shad (*Alosa mediocris*), striped bass (*Morone saxatilis*), shortnose sturgeon (*Acipenser brevirostrum*), Atlantic sturgeon (*Acipenser oxyrinchus*), and American eel (*Anguilla rostrata*).

#### *Impacts to NOAA Trust Resources*

The proposed project includes placement of fill material, bridges, and culverts in a total of 4,643 linear feet of streams and 271.9 acres of wetlands, temporary clearing 48.9 acres of wetlands, permanently clearing 17.1 acres wetlands, and excavating 4.4 acres of wetlands. In total, 342.3 acres of wetlands would be impacted from the proposed project, including 23 separate streams, 166 separate Waters of the U.S., and 23 open water features at various locations in Marlboro, Dillon, Marion, and Horry Counties. All of the wetlands impacted by the proposed action are palustrine.

As discussed during previous interagency meetings and comments submitted by NMFS on the Draft and Final EIS, our main concerns with the project include maintaining water quality and fish passage and the effectiveness of the mitigation proposals. Bridge construction and fill placement in the Little Pee Dee River and its tributaries can negatively impact these species, in particular during spawning periods. Placement of fill could smother eggs and reduce foraging opportunities for benthic feeding fish. High concentrations of suspended sediments can injure fish by abrading gills, particularly for young juveniles. In addition, pressure waves from pile driving can be fatal or injure fish in the vicinity of a pile driver.

The Environmental Commitments contained within the Final EIS for I-73 include a number of mitigation measures designed to preserve hydrological connectivity and prevent impediments to fish passage. Pipes and culverts would be strategically placed throughout the project area to maintain historic hydrologic connections to wetlands and prevent the drainage or excessive flooding of jurisdictional areas. However, the public notice and Final EIS mistakenly states the SCDOT and NMFS have entered into a Memorandum of Agreement (MOA) regarding impacts to sturgeon. This is not the case. While SCDOT's proposed seasonal moratorium on in-water work in the Little Pee Dee River between February 1 and April 30, annually, alleviated some of our concerns with the species, no MOA was formally recognized by NMFS. In addition, during multiple meetings and in our EIS comment letters, we advised the Federal Highways Administration (FHWA) that they are obligated to consult with our Protected Resources Division on shortnose sturgeon and proposed Atlantic sturgeon, in accordance with the Endangered Species Act (ESA). To our knowledge, neither FHWA nor the Charleston District has requested consultation be initiated. Determinations on the impacts of the proposed project on sturgeon should be directed to our Protected Resources Division at the letterhead address. No permit should be issued before ESA consultation is complete.

#### *Proposed Compensatory Mitigation*

SCDOT has proposed several of compensatory mitigation actions for the project. These include restoration of a site in Joiner Bay to compensate for wetland impacts and a site at Brittons Neck to offset stream-related impacts. In addition, SCDOT is proposing to purchase 1,500 wetland preservation credits from Sandy Island Mitigation Bank.

Joiner Bay is hydrologically complex with 5 defined headwater drainages that fall to the east and west of the center of the site and a complicated network of dikes and ditches. The SCDOT's Draft Mitigation Plan, dated August 2010, contains a restoration plan including plugging and backfilling ditches with fill from the existing road (essentially removing it), prescribed burns, removing non-merchantable stands, bedding removal, and planting. However, it does not provide adequate assurances that the site will be restored to desired wetland landscape given the complex flow conditions. Most notably, the plan lacks specific performance standards to determine the benefits described in the Project Goals. Performance standards should be reviewed and approved by the Interagency Review Team (IRT) before the project is allowed to move forward. Further, the adaptive management plan does not provide any details or

suggestions on what would be done if the mitigation does not perform as anticipated. NMFS recommends the applicant further explore the effectiveness of its plan and lay out a detailed adaptive management plan that would address any shortcomings in performance measures over the course of multi-year monitoring.

Brittons Neck mitigation is not well described. For example, portions of the site would remain agricultural; however, this aspect has not been adequately addressed in the mitigation plan. How would runoff from livestock affect water quality within the restoration site?

Sandy Island Mitigation Bank may not be suitable for offsetting the project impacts and its use may not meet the requirements of the Mitigation Rule, which is to apply a watershed approach. While the use of established mitigation banks is the preferred approach under the Mitigation Rule, the Mitigation Rule also requires that the applicant describe why, based on a watershed assessment, the use of this bank will adequately compensate for the lost wetland functions in this watershed. A watershed based assessment would look at the various mitigation alternatives and justify the ones selected. SCDOT has not provided us with a watershed assessment, and without one, it is not possible to determine if SCDOT has selected the best mitigation approach.

Other options for mitigation include removing impediments to passage of diadromous fish, including small abandoned dams, roadway stream crossings with "hanging" culverts, etc. This potential mitigation option should not take the place of wetland mitigation components, but may be valuable as a part of the overall plan to address riparian system mitigation. NMFS recommends the SCDOT identify such detriments to fish passage and remove or replace them, where possible.

We appreciate the opportunity to provide these comments. Please direct related correspondence to the attention of Ms. Jaclyn Daly at our Charleston Area Office. She may be reached at (843) 762-8610 or by e-mail at [Jaclyn.Daly@noaa.gov](mailto:Jaclyn.Daly@noaa.gov).

Sincerely,



/ for

Miles M. Croom  
Assistant Regional Administrator  
Habitat Conservation Division

cc:

COE, Stephen.A.Brumagin@usace.army.mil  
DHEC, owensen@dhec.sc.gov  
SCDNR, MixonG@dnr.sc.gov  
SAFMC, Roger.Pugliese@safmc.net  
EPA, Lord.Bob@epa.gov  
FWS, Karen\_Mcgee@fws.gov  
F/SER4, David.Dale@noaa.gov  
F/SER47, Jaclyn.Daly@noaa.gov



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69A HAGOOD AVENUE  
CHARLESTON, SOUTH CAROLINA 29403-5107

December 14, 2009

Regulatory Division

Mr. Randy Williamson, P.E.  
South Carolina Department of Transportation  
P.O. Box 191, 955 Park Street  
Columbia, South Carolina 29201

Re: SAC 2008-01333-DJS  
SCDOT PIN 36358 RD01  
I-73, North Segment Highway Project  
Dillon and Marlboro Counties

Dear Williamson:

This is in response to LPA Group's letter of June 17, 2008, requesting a wetland determination, on behalf of South Carolina Department of Transportation, for a proposed roadway corridor including approximately 3,716 acres, located Dillon and Marlboro Counties, South Carolina. The project area is depicted on the enclosed sketches entitled "Proposed Interstate 73, Wetland Delineation, Richmond, Scotland Counties, N.C., and Marlboro, Dillon Counties, S.C." and dated June 17, 2008.

You have requested that this office delineate the wetlands or other waters of the United States within the regulatory authority of this office. Based on an on-site inspection, a review of aerial photography, topographic maps, National Wetland Inventory maps and soil survey information, it has been concluded that the boundaries shown on the referenced sketch are a reasonable approximation of the location and boundaries of the wetlands found on this site. The property in question contains approximately 22,911 linear feet of jurisdictional tributaries, of which approximately 22,911 linear feet are jurisdictional tributaries of federally defined freshwater wetlands or other waters of the United States subject to the jurisdiction of this office. However, you are cautioned that this delineation is approximate, subject to change, and should be used for planning purposes only. This office should be contacted prior to performing any work in or around these approximated wetlands or other waters of the United States. In order for a more accurate delineation to be provided, these areas should be located and marked on-site, and surveyed and platted on a map (in order for the wetland line to be reproduced in the future based solely on the platted map). Upon receipt of such a plat, this office can then issue a letter verifying the accuracy of the actual jurisdictional boundaries. You should also be aware that the areas identified as wetlands or other waters of the United States may be subject to restrictions or requirements of other state or local government entities.

Please note that the actual boundary of wetlands is approximate and, therefore, is subject to change and not appealable; however, the determination of jurisdiction over these wetlands is final and this approved jurisdictional determination is an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. The administrative appeal options, process and appeals request form is attached for your convenience and use. If a permit application is forthcoming as a result of this delineation, a copy of this letter, as well as the verified sketch should be submitted as part of the application. Otherwise, a delay could occur in confirming that a delineation was performed for the permit project area.

Please be advised that this determination is valid for five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. All actions concerning this determination must be complete within this time frame, or an additional determination and delineation must be conducted.

In future correspondence concerning this matter, please refer to SAC 2008-1333-DJS. You may still need state or local assent. If you have any questions concerning this matter, please contact Stephen A. Brumagin at 803-253-3445.

Sincerely,

Travis G. Hughes  
Chief, Special Projects Branch

Enclosures:

Approved Jurisdictional Determination Form  
Notification of Appeal Options  
Rapanos Forms

Copy Furnished with Rapanos Forms:

The LPA Group, Incorporated  
Ms. Renée Y. Flinchum-Bowles  
P.O. Box 5805, 700 Huger Street  
Columbia, South Carolina 29250

**APPROVED JURISDICTIONAL DETERMINATION FORM**  
**U.S. Army Corps of Engineers**

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

**SECTION I: BACKGROUND INFORMATION**

**A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD):** October 19, 2009

**B. DISTRICT OFFICE, FILE NAME, AND NUMBER:** Charleston District, I-73 North Jurisdictional Determination, SAC 2008-01333-DJS

**C. PROJECT LOCATION AND BACKGROUND INFORMATION:**

State: South Carolina County/parish/borough: Marlboro and Dillon Counties City:  
Center coordinates of site (lat/long in degree decimal format): Lat. See below ° N, Long. See below ° W.  
Universal Transverse Mercator:

Name of nearest waterbody: See below

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows:

Name of watershed or Hydrologic Unit Code (HUC): 03040201-010 Little Pee Dee and 03040201-050 Great Pee Dee Watershed

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

**D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):**

☒ Office (Desk) Determination. Date: October 5, 2009

☒ Field Determination. Date(s): Numerous dates for some of the below listed features

**SECTION II: SUMMARY OF FINDINGS**

**A. RHA SECTION 10 DETERMINATION OF JURISDICTION.**

There ~~are no~~ "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

☐ Waters subject to the ebb and flow of the tide.

☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.  
Explain:

**B. CWA SECTION 404 DETERMINATION OF JURISDICTION.**

There ~~are no~~ "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

**1. Waters of the U.S.**

**a. Indicate presence of waters of U.S. in review area (check all that apply):<sup>1</sup>**

- ☐ TNWs, including territorial seas
- ☐ Wetlands adjacent to TNWs
- ☐ Relatively permanent waters<sup>2</sup> (RPWs) that flow directly or indirectly into TNWs
- ☐ Non-RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
- ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
- ☐ Impoundments of jurisdictional waters
- ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

**b. Identify (estimate) size of waters of the U.S. in the review area:**

Non-wetland waters: linear feet: width (ft) and/or acres.  
Wetlands: acres.

**c. Limits (boundaries) of jurisdiction based on: ~~Pick List~~**

Elevation of established OHWM (if known):

**2. Non-regulated waters/wetlands (check if applicable):<sup>3</sup>**

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.  
Explain:

Feature	Length (L.F.)	Lat.	Long.
---------	---------------	------	-------

<sup>1</sup> Boxes checked below shall be supported by completing the appropriate sections in Section III below

<sup>2</sup> For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

<sup>3</sup> Supporting documentation is presented in Section III.F.

S-181	1002.9 feet	34.786760	-79.658814
S-183	2157.78 feet	34.775489	-79.658110
S-184	284.66 feet	34.759922	-79.651031
S-185	640.74 feet	34.760059	-79.649989
S-186(ML-4)	857.25 feet	34.744816	-79.633857
S-187(ML-4)	206.94 feet	34.742832	-79.633348
S-197	1168.42 feet	34.648605	-79.643341
S-198	1566.12 feet	34.645218	-79.645406
S-201	917.64 feet	34.627673	-79.641408
S-205 (ML-21)	1396.35 feet	34.481464	-79.571038
S-206	492.78 feet	34.622322	-79.640709
S-211	1584.72 feet	34.591457	-79.623992
S-212	195.48 feet	34.587257	-79.621790
S-214	1026.28 feet	34.565876	-79.591438
S-221 & 222 (ML-44)	1396.35 feet	34.484381	-79.571658
S-228	721.87 feet	34.448939	-79.558917
S-233	976.44 feet	34.431621	-79.549003
S-234	59.47 feet	34.431270	-79.545109
S-235	1215.07 feet	34.429038	-79.548436
S-236	962.81 feet	34.427907	-79.545049
S-237	848.96 feet	34.426026	-79.549426
S-238	1029.54 feet	34.421486	-79.541673
S-242	572.34 feet	34.406512	-79.519338
S-247	1995.92 feet	34.391991	-79.496181
S-248	647.70 feet	34.394277	-79.498459
S-250	585.96 feet	34.393903	-79.497888
S-252	481.57 feet	34.393372	-79.496729
D-66	725 feet	34.391860	-79.504850

Although these features are indicated by the consultant as blue lines on the supplied aerial and topographic mapping, these include drainage features have been created in uplands for the purpose of draining predominantly upland areas. These features provide for movement of surface waters away from agricultural fields, pine plantations, and roadways. These features are not tributaries, do not have indication of ordinary high water marks, and are not considered to be Non-Relatively Permanent Waters. .

### SECTION III: CWA ANALYSIS

#### A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**  
Identify TNW:

Summarize rationale supporting determination:

2. **Wetland adjacent to TNW**  
Summarize rationale supporting conclusion that wetland is "adjacent":

#### B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody<sup>4</sup> is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

##### 1. Characteristics of non-TNWs that flow directly or indirectly into TNW

###### (i) General Area Conditions:

Watershed size: **Pick List**  
Drainage area: **Pick List**  
Average annual rainfall: inches  
Average annual snowfall: inches

###### (ii) Physical Characteristics:

###### (a) Relationship with TNW:

- ☐ Tributary flows directly into TNW.  
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.  
Project waters are **Pick List** river miles from RPW.  
Project waters are **Pick List** aerial (straight) miles from TNW.  
Project waters are **Pick List** aerial (straight) miles from RPW.  
Project waters cross or serve as state boundaries. Explain:

Identify flow route to TNW<sup>5</sup>:  
Tributary stream order, if known:

<sup>4</sup> Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

<sup>5</sup> Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.



(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural  
☐ Artificial (man-made). Explain:  
☐ Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: feet  
Average depth: feet  
Average side slopes: **Pick List**

Primary tributary substrate composition (check all that apply):

☐ Silts ☐ Sands ☐ Concrete  
☐ Cobbles ☐ Gravel ☐ Muck  
☐ Bedrock ☐ Vegetation. Type/% cover:  
☐ Other. Explain:

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain:

Presence of run/riffle/pool complexes. Explain:

Tributary geometry: **Pick List**

Tributary gradient (approximate average slope): %

(c) Flow:

Tributary provides for: **Pick List**

Estimate average number of flow events in review area/year: **Pick List**

Describe flow regime:

Other information on duration and volume:

Surface flow is: **Pick List**. Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

Tributary has (check all that apply):

☐ Bed and banks  
☐ OHWM<sup>6</sup> (check all indicators that apply):  
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris  
☐ changes in the character of soil ☐ destruction of terrestrial vegetation  
☐ shelving ☐ the presence of wrack line  
☐ vegetation matted down, bent, or absent ☐ sediment sorting  
☐ leaf litter disturbed or washed away ☐ scour  
☐ sediment deposition ☐ multiple observed or predicted flow events  
☐ water staining ☐ abrupt change in plant community  
☐ other (list):  
☐ Discontinuous OHWM.<sup>7</sup> Explain:

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:  
☐ oil or scum line along shore objects ☐ survey to available datum;  
☐ fine shell or debris deposits (foreshore) ☐ physical markings;  
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.  
☐ tidal gauges  
☐ other (list):

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain:

Identify specific pollutants, if known:

<sup>6</sup>A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

<sup>7</sup>Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width):
- ☐ Wetland fringe. Characteristics:
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☐ Other environmentally-sensitive species. Explain findings:
  - ☐ Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size:          acres

Wetland type. Explain:

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain:

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain:

Surface flow is: **Pick List**

Characteristics:

Subsurface flow: **Pick List**. Explain findings:

☐ Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain:
  - ☐ Ecological connection. Explain:
  - ☐ Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List**.

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain:

Identify specific pollutants, if known:

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width):
- ☐ Vegetation type/percent cover. Explain:
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings:
  - ☐ Fish/spawn areas. Explain findings:
  - ☐ Other environmentally-sensitive species. Explain findings:
  - ☐ Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately (          ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)

Size (in acres)

Directly abuts? (Y/N)

Size (in acres)

Summarize overall biological, chemical and physical functions being performed:

### C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

**Note:** the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

### D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:

☐ TNWs: linear feet width (ft), Or, acres.  
☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**

☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:  
☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

**3. Non-RPWs<sup>8</sup> that flow directly or indirectly into TNWs.**

- ☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

**4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.

☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**

- ☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

**6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**

- ☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

**7. Impoundments of jurisdictional waters.<sup>9</sup>**

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

☐ Demonstrate that impoundment was created from "waters of the U.S.," or

☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or

☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

**E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):<sup>10</sup>**

☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.

☐ which are or could be used for industrial purposes by industries in interstate commerce.

☐ Interstate isolated waters. Explain: .

☐ Other factors. Explain: .

**Identify water body and summarize rationale supporting determination:**

<sup>8</sup>See Footnote # 3.

<sup>9</sup>To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

<sup>10</sup> Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).

☐ Other non-wetland waters: acres.

Identify type(s) of waters: .

☐ Wetlands: acres.

**F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):**

☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.

☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.

☐ Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).

☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .

☒ Other: (explain, if not covered above):

Feature	Length (L.F.)	Lat.	Long.
S-181	1002.9 feet	34.786760	-79.658814
S-183	2157.78 feet	34.775489	-79.658110
S-184	284.66 feet	34.759922	-79.651031
S-185	640.74 feet	34.760059	-79.649989
S-186(ML-4)	857.25 feet	34.744816	-79.633857
S-187(ML-4)	206.94 feet	34.742832	-79.633348
S-197	1168.42 feet	34.648605	-79.643341
S-198	1566.12 feet	34.645218	-79.645406
S-201	917.64 feet	34.627673	-79.641408
S-205 (ML-21)	1396.35 feet	34.481464	-79.571038
S-206	492.78 feet	34.622322	-79.640709
S-211	1584.72 feet	34.591457	-79.623992
S-212	195.48 feet	34.587257	-79.621790
S-214	1026.28 feet	34.565876	-79.591438
S-221 & 222 (ML-44)	1396.35 feet	34.484381	-79.571658
S-228	721.87 feet	34.448939	-79.558917
S-233	976.44 feet	34.431621	-79.549003
S-234	59.47 feet	34.431270	-79.545109
S-235	1215.07 feet	34.429038	-79.548436
S-236	962.81 feet	34.427907	-79.545049
S-237	848.96 feet	34.426026	-79.549426
S-238	1029.54 feet	34.421486	-79.541673
S-242	572.34 feet	34.406512	-79.519338
S-247	1995.92 feet	34.391991	-79.496181
S-248	647.70 feet	34.394277	-79.498459
S-250	585.96 feet	34.393903	-79.497888
S-252	481.57 feet	34.393372	-79.496729
D-66	725 feet	34.391860	-79.504850

Although these features are indicated by the consultant as blue lines on the supplied aerial and topographic mapping, these include drainage features have been created in uplands for the purpose of draining predominantly upland areas. These features provide for movement of surface waters away from agricultural fields, pine plantations, and roadways. These features are not tributaries, do not have indication of ordinary high water marks, and are not considered to be Non-Relatively Permanent Waters. .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).

☐ Lakes/ponds: acres.

☐ Other non-wetland waters: acres. List type of aquatic resource: .

☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).

☐ Lakes/ponds: acres.

- ☐ Other non-wetland waters:      acres. List type of aquatic resource:  
☐ Wetlands:      acres.

#### **SECTION IV: DATA SOURCES.**

##### **A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):**

- ☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant:  
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.  
☐ Office concurs with data sheets/delineation report.  
☐ Office does not concur with data sheets/delineation report.  
☒ Data sheets prepared by the Corps:  
☒ Corps navigable waters' study:  
☒ U.S. Geological Survey Hydrologic Atlas:  
☐ USGS NIID data.  
☐ USGS 8 and 12 digit HUC maps.  
☒ U.S. Geological Survey map(s). Cite scale & quad name:  
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: .  
☒ National wetlands inventory map(s). Cite name:  
☒ State/Local wetland inventory map(s):  
☒ FEMA/FIRM maps:  
☒ 100-year Floodplain Elevation is:      (National Geodetic Vertical Datum of 1929)  
☒ Photographs: ☐ Aerial (Name & Date):(1999) .  
                                  or ☐ Other (Name & Date):  
☒ Previous determination(s). File no. and date of response letter:  
☒ Applicable/supporting case law:  
☒ Applicable/supporting scientific literature:  
☒ Other information (please specify):LIST ALL WATERS, LAT/LONG AND LF HERE. Then general statement when field viewed and why not a tributary.

##### **B. ADDITIONAL COMMENTS TO SUPPORT JD:**

Feature	Length (L.F.)	Lat.	Long.
S-181	1002.9 feet	34.786760	-79.658814
S-183	2157.78 feet	34.775489	-79.658110
S-184	284.66 feet	34.759922	-79.651031
S-185	640.74 feet	34.760059	-79.649989
S-186 (ML-4)	857.25 feet	34.744816	-79.633857
S-187(ML-4)	206.94 feet	34.742832	-79.633348
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S-205 (ML-21)	1396.35 feet	34.481464	-79.571038
S-206	492.78 feet	34.622322	-79.640709
S-211	1584.72 feet	34.591457	-79.623992
S-212	195.48 feet	34.587257	-79.621790
S-214	1026.28 feet	34.565876	-79.591438
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S-252	481.57 feet	34.393372	-79.496729
D-66	725 feet	34.391860	-79.504850

Although these features are indicated by the consultant as blue lines on the supplied aerial and topographic mapping, these include drainage features have been created in uplands for the purpose of draining predominantly upland areas. These features provide for movement of surface waters away from agricultural fields, pine plantations, and roadways. These features are not tributaries, do not have indication of ordinary high water marks, and are not considered to be Non-Relatively Permanent Waters.

The features documented on this form include wetlands or other waters that are not jurisdictional. The features exhibit no apparent connection to Waters of the U.S., including no physical, chemical, or biological connections, and no apparent shallow subsurface flow connections to other waters.

# NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant:	File Number:	Date:
Attached is:		See Section below
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	<b>APPROVED JURISDICTIONAL DETERMINATION</b>	<b>D</b>
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION I -** The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at <http://usace.army.mil/inet/functions/cw/cecwo/reg> or Corps regulations at 33 CFR Part 331.

**A: INITIAL PROFFERED PERMIT:** You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

**B: PROFFERED PERMIT:** You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**D: APPROVED JURISDICTIONAL DETERMINATION:** You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer, South Atlantic Division, 60 Forsyth St, SW, Atlanta, GA 30308-8801. This form must be received by the Division Engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is **not appealable**. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.



**SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

**POINT OF CONTACT FOR QUESTIONS OR INFORMATION**

If you have questions regarding this decision and/or the appeal process you may contact the Corps biologist who signed the letter to which this notification is attached. The name and telephone number of this person is given at the end of the letter.

If you only have questions regarding the appeal process you may also contact the Coordinator for Appeals in our South Atlantic Division Office in Atlanta, Georgia at (404) 562-5136.

60 Forsyth St, SW Atlanta, GA 30308-8801

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:



**South Carolina  
Department of Transportation**

June 6, 2008

Ms. Elizabeth Johnson  
Deputy State Historic Preservation Officer  
South Carolina Dept. of Archives & History  
8301 Parklane Road  
Columbia, South Carolina 29223-4905

Re: I-73 Northern Corridor, Determination of Effect for Marlboro County Site 031 0011 –  
Beauty Spot Court Office.

Dear Ms. Johnson:

As you recall The Department's consultant (Brockington and Associates) completed a draft report for the I-73 Northern Corridor. In that report site 031 0011, the Beauty Spot Court Office, was recommended not eligible for the National Register based on alterations that have been made to the structure and also due to the fact that all the associated cabins are no longer in existence. After review of the draft report, verbal discussions occurred between your office and SCDOT where it was noted that the two agencies disagreed on the eligibility determination for the Beauty Spot Court Office. A meeting was then held between your office, the SCDOT, the FHWA and SCDOT's consultant on March 4, 2008 to try and work out the disagreement. At the meeting FHWA stated that they were prepared to elevate the decision to the Keeper of the Register to make the determination due to the fact that SCDOT and Brockington and Associate's staff felt strongly that the site was not eligible. After the meeting your office submitted a formal response to SCDOT on March 6, 2008 providing written comments regarding the eligibility of the Beauty Spot Court Office.

Since the meeting FHWA has consulted with their staff architectural historian and have decided not to elevate the issue to the Keeper of the Register. Therefore the SCDOT and FHWA agree with your office that the Beauty Spot Court Office is eligible for the National Register of Historic Places (NRHP) under Criterion A for its role in and contribution to automobile or highway-related tourism in the United States and under Criterion C as an early and good example of what is often referred to as "roadside architecture."

The SCDOT has looked at alternatives that would avoid impacting the Beauty Spot site but has found that the avoidance alternatives would lead to other significant impacts such as taking of more homes and wetlands. The Beauty Spot Motor Court Office Building is located directly in the right-of-way of the Preferred Alternative at the proposed U.S. Route 15/401 interchange. Construction of the Preferred Alternative would result in direct acquisition and demolition of the site, which is an adverse effect under Section 106 of the *National Historic Preservation Act*. Therefore, we will work with your office to develop a Memorandum of Agreement for the mitigations of these adverse effects.

In accordance with the memorandum of agreement approved by the Federal Highway Administration, March 16, 1993, the Department is providing this information as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation Act.



**MEMORANDUM OF AGREEMENT BETWEEN  
THE FEDERAL HIGHWAY ADMINISTRATION,  
THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION,  
AND THE SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICE**

Whereas, the Federal Highway Administration (FHWA) has determined that the Interstate 73 Project in Marlboro County, South Carolina, will have an adverse effect upon the Beauty Spot Motor Court Office (Survey Site # 0011), a property determined eligible for inclusion in the National Register of Historic Places, and

WHEREAS, the FHWA has notified the Advisory Council on Historic Preservation of the adverse effect determination in accordance with Section 106 of the National Historic Preservation Act (36 CFR Part 800.6 (a)) and the Council has elected not to participate, and

WHEREAS, the FHWA has delegated responsibility to the South Carolina Department of Transportation (SCDOT) to coordinate with the South Carolina State Historic Preservation Officer (SHPO) on matters related to Section 106 of the National Historic Preservation Act (16 U.S.C. Sec. 470f), and

WHEREAS, the SCDOT has consulted with the South Carolina SHPO in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. Sec. 470f) and its implementing regulations (36 CFR Part 800) to resolve adverse effects, and

NOW, THEREFORE, the FHWA, the SCDOT, and the South Carolina SHPO agree that the undertaking will be implemented according to the following stipulations in order to take into account the effects of the undertaking on the Beauty Spot Motor Court Office:

**STIPULATIONS**

The FHWA and the SCDOT will ensure that the following stipulation is implemented:

- 1.) A "popular" publication, such as a brochure or poster, focusing on the history of the Beauty Spot Motor Court Office and providing a brief context of motor court and early automobile-related tourism history in Marlboro County will be produced. The term "popular" is used because the publication should include images, graphics, and language designed to appeal to the general public. The publication may cover areas and resources beyond Marlboro County if those are pertinent to the history and context. Two Thousand (2,000) copies of this publication will be produced and copies will be distributed to the Marlboro County Historical Society, the Marlboro County Historic Preservation Commission, the Marlboro County Public Library, and the Pee Dee Council of Governments. The remaining copies will be submitted to the SHPO. Additionally, an electronic copy in PDF format will be submitted to the South Carolina SHPO for posting on the South Carolina SHPO's website.

### **Late Discoveries**

If unanticipated cultural materials (e.g., large, intact artifacts or animal bones; large soils stains or patterns of soil stains; buried brick or stone structures; clusters of brick or stone) or human skeletal remains are discovered during construction activities, then the Resident Construction Engineer shall be immediately notified and all work in the vicinity of the discovered materials shall cease until an evaluation can be made by the SCDOT archaeologist in consultation with the South Carolina SHPO.

### **Dispute Resolution**

The FHWA, the SCDOT, and the South Carolina SHPO will attempt to resolve any disagreement arising from the implementation of the MOA. This will include any disputes that arise concerning the contents of the report(s), including but not limited to its merit as a cultural resource management document.

In the event that the terms of this agreement cannot be carried out, the FHWA and SCDOT will submit a new (or amended) MOA to the South Carolina SHPO and the Council for review. If consultation to prepare a new MOA or amendments proves unproductive, the FHWA will seek Council comment in accordance with 36CFR Part 800.6(b)(1).

### **Amendment and Modification**

Any party to this MOA may request that it be amended or modified at any time, whereupon the parties will consult with each other to consider such amendment or modification.

Execution of this Memorandum of Agreement by the Federal Highway Administration, the South Carolina Department of Transportation, and the South Carolina State Historic Preservation Office and implementation of its terms, is evidence that the FHWA has taken into account the effects of the undertaking on the Beauty Spot Motor Court Office in accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. Sec. 470f) and its implementing regulations (36 CFR Part 800).

#### **Federal Highway Administration**

By: Patrick J. Zyzanski Date: 7-17-08

#### **South Carolina Department of Transportation**

By: Wayne D. Roberts Date: 7/14/08

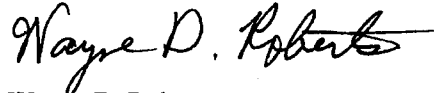
#### **South Carolina State Historic Preservation Office**

By: Richard E. Stew Date: 5/15/08

Ms. Elizabeth Johnson  
June 6, 2008  
Page 2

It is requested that you review the enclosed material and, if appropriate, indicate your concurrence in the Department's findings, thus completing the Section 106 consultation process. Please respond within 30 days if you have any objections or if you have need of additional information.

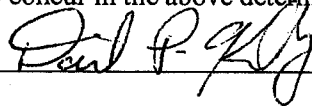
Sincerely,



Wayne D. Roberts  
Chief Archaeologist

WDR:edb  
Attachments

I (~~do not~~) concur in the above determination.

Signed:  Date: 6/11/08

cc: Patrick Tyndall (FHWA) *SUDAH*  
Amanda Brooks Queen (Environmental Management) *DOT Project Coordinator*  
Keith Derting (SCIAA)  
Edward Salo (Brockington and Associates)

File: Env/WDR



March 6, 2008

Mr. Wayne D. Roberts  
Chief Archaeologist  
SC Department of Transportation  
Post Office Box 191  
Columbia, SC 29202-0191

Re: Brockington and Associates' Draft Report *Intensive Architectural Survey of the Three Proposed Alternates, I-73 Northern Corridor, Dillon and Marlboro Counties, South Carolina* and *Intensive Architectural Survey of the Three Proposed Alternates, I-73 Northern Corridor, Dillon and Marlboro Counties, South Carolina, Addendum Report*

Dear Mr. Roberts:

Thank you for submitting the reports referenced above, which we received in July 2007. The State Historic Preservation Office's (SHPO) comments on these reports come well outside of our goal of a thirty-day review period due to the need for additional research, meetings, site visits, and reevaluations due to design changes. The SHPO appreciates the South Carolina Department of Transportation's (SCDOT) patience in this matter and assistance in evaluating the findings of these reports.

The National Register of Historic Places (NRHP) eligibility recommendations made in these reports are found in the appendices of both reports in tables labeled "B-2." The SHPO concurs with the eligibility recommendations made in these tables **with the exception of sites 0890 (Hebron Colored School) and 0011 (Beauty Spot Court Office—referred to in the table as site 0011.01)**, both located in Marlboro County. These sites were recommended "not eligible" by SCDOT's consultant, but the SHPO recommends that both sites are eligible for the NRHP. To clarify, the SHPO finds the following sites addressed in these reports to be NRHP eligible:

- Marlboro County sites 0005.01 & 0005.02—outbuildings associated with the NRHP listed McLaurin House
- Marlboro County site 0011—Beauty Spot Court Office.

- Marlboro County site 0887—Hebron United Methodist Church
- Marlboro County site 0888—Hebron Academy
- Marlboro County site 0889—Hebron cemetery
- Marlboro County site 0890—Hebron Colored School
- Marlboro County site 0915—Sparks House
- Marlboro County site 0918—unidentified house at 1105 Road S-18
- Marlboro County site 0919—Oakley House
- Marlboro County site 0928—Brightsville School
- Marlboro County site 0929—Brightsville School Teacherage
- Marlboro County site 0981—Manning House
- Marlboro County site 1095—unidentified house at 834 SC Highway 9
- Marlboro County site 1107—Mimosa Plantation house
- Dillon County sites 0727.00 through 0727.06—Alford House and associated agricultural outbuildings

None of the sites listed above will be affected by the present preferred alignment for I-73 except for Marlboro County site 0011, the Beauty Spot Court Office. The SHPO finds that the preferred alignment will have an adverse effect on the Beauty Spot Court Office. The SHPO understands that SCDOT, its consultants, and the Federal Highway Administration (FHWA) believe site 0011 is not eligible. The SHPO staff met with these parties on March 4, 2008 to discuss this difference of opinion.

The SHPO believes that site 0011 is eligible for the NRHP under Criterion A for its role in and contribution to automobile or highway-related tourism in the United States and under Criterion C as an early and good example of what is often referred to as “roadside architecture.” Roadside architecture resources are properties whose development and function directly correlated with automobile travel in this country, such as gas stations, roadside cafes and restaurants, tourist attractions, and motor courts and motels. A great number of these resources are associated with the post-World War II boom in leisure travel by automobile. Less prevalent are the roadside architecture resources dating to the “interwar” years of the 1920s and 1930s. The Beauty Spot Court Office belongs to this class of rare, early roadside architecture resources.

The SHPO acknowledges that the Beauty Spot Court has lost integrity as a complex due to the loss of the cabins and outbuildings associated with the office building; however, the SHPO feels that the Beauty Spot Court Office by itself makes a strong architectural statement that conveys an early chapter in the story of roadside architecture. The building’s main features and form as an eclectic interpretation of the Colonial Revival are intact, and the majority of alterations to the building are either on secondary facades or are historic alterations. The Beauty Spot Court Office is one of a very few pre-World War II motor court related buildings in South Carolina and the SHPO believes it is invaluable in telling the story of the automobile-related tourism that grew over the 20<sup>th</sup> century to become the state’s biggest industry.

We are providing these comments to assist you with your responsibilities as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation Act. If you have any questions, please call me at (803) 896-6184.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Kelly", with a stylized flourish at the end.

David Kelly  
SC SHPO  
Department of Transportation Project Coordinator

cc: Patrick Tyndall, FHWA  
Shane Belcher, FHWA  
Randy Williamson, SCDOT  
Skip Johnson, The LPA Group  
Ed Salo, Brockington and Associates





September 24, 2007

Mr. Randy Williamson  
Environmental Engineer  
South Carolina Department of Transportation  
955 Park Street  
Columbia, SC 29202-0191

**Re: I-73 Southern Portion Preferred Alternate—Aboveground Cultural Resource Findings.**

Dear Mr. Williamson:

The State Historic Preservation Office (SHPO) has reviewed the information submitted regarding the I-73 Southern Portion Preferred Alternate and determined that no aboveground historic properties will be affected by the project. Archaeological resources for the I-73 Southern Portion Preferred Alternate were previously addressed in the South Carolina Department of Transportation's (SCDOT) 8/17/07 concurrence letter. SHPO's finding for aboveground cultural resources is based on the understanding that the Preferred Alternate for the I-73 Southern Portion is the alignment/corridor referred to as "Alternative Three" during I-73 Agency Coordination Team meetings and in study materials provided by SCDOT. If the I-73 Southern Portion Preferred Alternate has changed, does change, or is any way modified, SHPO will need to review additional cultural resource study materials that address the changes or modifications.

SHPO commends SCDOT, the Federal Highway Administration (FHWA), and the LPA Group for the effort that went into producing a Preferred Alternate for the I-73 Southern Portion that does not affect aboveground cultural resources. Avoiding historically significant resources in a project of such grand scale is an amazing feat and demonstrates the environmental sensitivity of all the players involved. We look forward to continued coordination with SCDOT, FHWA, and the LPA Group on the adjoining I-73 Northern Portion.

We are providing these comments to assist you with your responsibilities as agency official designee, as defined under 36 CFR 800.2, to ensure compliance with Section 106 of the National Historic Preservation Act. If you have any questions, please call me at (803) 896-6184.

Sincerely,

David P. Kelly  
DOT Project Coordinator

cc: Patrick Tyndall, FHWA  
Mitchell Metts, SCDOT  
Wayne Roberts, SCDOT  
Wayne Hall, SCDOT  
Skip Johnson, LPA Group





# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



October 16, 2007

Mr. Wayne Hall  
Special Projects Manager  
South Carolina Department of Transportation  
Post Office Box 191  
Columbia, SC 29202-0191

Re: I-73 Southern Phase, Biological Assessment

Dear Mr. Hall:

The U.S. Fish and Wildlife Service (Service) has received the results of the Biological Assessment (BA) for the proposed construction of the southern phase of I-73 between I-95 in Dillon County and SC-22 in Horry County, SC. The BA, completed by the South Carolina Department of Transportation (SCDOT), provides a brief description of the project and its proposed corridor; a review of habitats within the corridor and a list of the 15 protected species known to occur within Horry, Marion and Dillon Counties. An Environmental Impact Statement for this phase of the project was previously reviewed by the Service.

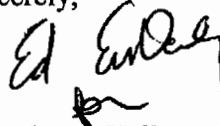
The Service recommends SCDOT contact the National Marine Fisheries Service (NMFS) for consultation requirements regarding the Shortnose sturgeon, *Acipenser brevirostrum*. The Service and NMFS share jurisdiction over the listed sea turtles, however, these species are not found within the project corridor. Similarly the West Indian Manatee, *Trichechus manatus*, the Seabeach amaranth, *Amaranthus pumilus*, and the Piping plover, *Charadrius melodus* require specific habitat types and do not occur within the project corridor. Finally, consultation for the Bald eagle, *Haliaeetus leucocephalus*, under the Endangered Species Act, 1973, is no longer required.

The BA has concluded that the proposed activity may affect, but is not likely to adversely affect the Kirkland's warbler. Further, the BA concludes the project will have no effect upon the Pondberry, Canby's dropwort, American chaffseed, Red-cockaded woodpecker or the Wood stork. Upon view of the information provided, the Service concurs with conclusions in the BA regarding listed species. However, obligations under section 7 of the Endangered Species Act must be considered if (1) new information reveals impacts of this identified action that may affect any listed species or critical habitat in a manner not previously considered, (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

**TAKE PRIDE  
IN AMERICA** 

If you have any questions regarding the Service's comments, please do not hesitate to contact Mark Caldwell at (843) 727-4707, ext 215.

Sincerely,

A handwritten signature in black ink, appearing to read "Ed Enders", written over the word "Sincerely,".

Timothy N. Hall  
Field Supervisor

cc: Mr. Patrick Tyndall, FHWA, Columbia, SC

TNH/MAC/km



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407



August 6, 2008

Ms. Amanda Brooks Queen  
Environmental Projects Manager  
South Carolina Department of Transportation  
Post Office Box 191  
Columbia, SC 29202-0191

Re: I-73 Northern Phase, Biological Assessment

Dear Ms. Queen:

The U.S. Fish and Wildlife Service (Service) has received the results of the Biological Assessment (BA) for the proposed construction of the northern phase of I-73 between I-95 in Dillon County and I-74 near Hamlet, North Carolina. The BA, completed by the South Carolina Department of Transportation (SCDOT), provides a brief description of the project and its proposed corridor, a review of habitats within the corridor and a list of the nine protected species known to occur within Dillon and Marlboro Counties, SC as well as Richmond and Scotland Counties, NC.

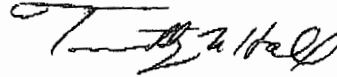
The Service recommends SCDOT contact the National Marine Fisheries Service (NMFS) for consultation requirements regarding the shortnose sturgeon, *Acipenser brevirostrum*. The bald eagle, *Haliaeetus leucocephalus*, was delisted in August 2007 and no longer protected under the Endangered Species Act, 1973; therefore no section 7 consultation is required.

The BA concluded that the proposed activity will have no effect on any of the species reviewed. Upon view of the information provided, the Service concurs with conclusions in the BA regarding listed species. However, obligations under section 7 of the Endangered Species Act must be considered if (1) new information reveals impacts of this identified action that may affect any listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not considered in this assessment, or (3) a new species is listed or critical habitat is determined that may be affected by the identified action.

TAKE PRIDE  
IN AMERICA 

If you have any questions regarding the Service's comments, please do not hesitate to contact Mark Caldwell at (843) 727-4707 ext. 215.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy N. Hall", written over a horizontal line.

Timothy N. Hall  
Field Supervisor

TNH/MAC

cc: Mr. Patrick Tyndall, FHWA, Columbia, SC



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69A Hagood Avenue  
CHARLESTON, SOUTH CAROLINA 29403-5107

March 18, 2008

Regulatory Division

Ms. Renée Y. Flinchum-Bowles  
The LPA Group Incorporated  
P.O. Box 5805  
Columbia, SC 29250

Re: SAC SAC 2007-1331-DJS  
I-73 South Roadway Corridor  
SC DOT PIN# 36358 RD01  
Dillon, Marion, and Horry Counties

Dear Ms. Flinchum-Bowles:

This is in response to your letter of June 1, 2007, requesting a wetland determination, on behalf of SC DOT, for an approximately 3200 acre tract, located along the proposed corridor for the Southern portion of I-73 from S.C. 22 near Spring Hill, Horry County, South Carolina to I-95 between exit 181 (I-95/SC 38 Interchange) and exit 190 (I-95/SC 34 Interchange), in Dillon County, South Carolina. The project area is depicted on the enclosed sketches including Figures 1 of 34 entitled "PIN 36358 RD01, Proposed Interstate 73, Wetland Delineation, Marion, Dillon, Horry Counties, Dated November 27, 2007" through Figures 34 of 34 entitled "PIN 36358 RD01, Proposed Interstate 73, Wetland Delineation, Marion, Dillon, Horry Counties, Dated November 27, 2007" submitted 10/23/2007.

Based on an on-site inspection, a review of aerial photography, topographic maps, National Wetland Inventory maps and soil survey information, it has been concluded that the boundaries shown on the referenced sketch are a reasonable approximation of the location and boundaries of the wetlands found on this site. The property in question contains approximately 579.5 acres of federally defined freshwater wetlands and other waters of the United States subject to the jurisdiction of this office. However, you are cautioned that this delineation is approximate, subject to change, and should be used for planning purposes only. This office should be contacted prior to performing any work in or around these approximated wetlands or other waters of the United States. In order for a more accurate delineation to be provided, these areas should be located and marked on-site, and surveyed and platted on a map (in order for the wetland line to be reproduced in the future based solely on the platted map). Upon receipt of such a plat, this office can then issue a letter verifying the accuracy of the actual jurisdictional boundaries. You should also be aware that the areas identified as wetlands or other waters of the United States may be subject to restrictions or requirements of other state or local government entities.

In addition, the property in question contains approximately 41.5 acres of federally defined freshwater wetlands as defined by the 1987 US Army Corps of Engineers Wetland Delineation Manual; however, they are not considered to be subject to the jurisdiction of this office due to

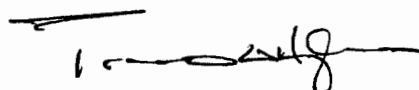
decisions by the U.S. Supreme Court and, as such, Department of the Army authorization will not be required for mechanized land clearing, excavation, or the placement of dredged or fill material on this site. The location and configuration of these areas are reflected on the sketch referenced above. It should be clearly noted that decisions of the U.S. Supreme Court to exclude certain waters and wetlands from federal jurisdiction under the Clean Water Act has no effect on any state or local government restrictions or requirements concerning aquatic resources, including wetlands. You are strongly cautioned to ascertain whether such restrictions or requirements exist for the area in question before undertaking any activity which might destroy or otherwise impact these wetland resources.

Please note that the actual boundary of wetlands is approximate and, therefore, is subject to change and not appealable; however, the determination of jurisdiction over these wetlands is final and this approved jurisdictional determination is an appealable action under the Corps of Engineers administrative appeal procedures defined at 33 CFR 331. The administrative appeal options, process and appeals request form is attached for your convenience and use. If a permit application is forthcoming as a result of this delineation, a copy of this letter, as well as the verified sketch should be submitted as part of the application. Otherwise, a delay could occur in confirming that a delineation was performed for the permit project area.

Please be advised that this determination is valid for five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. All actions concerning this determination must be complete within this time frame, or an additional determination and delineation must be conducted.

In future correspondence concerning this matter, please refer to SAC 2007-1331-DJS. If you have any questions concerning this matter, please contact Stephen A. Brumagin at 803-253-3445.

Respectfully,



Travis G. Hughes  
Branch Chief, Special Projects Branch

Enclosures:  
Approved Jurisdictional Determination Form  
Notification of Appeal Options

Copy Furnished:

Mr. Mitchell Metts, P.E., Project Manager  
SC DOT  
955 Park Street  
P.O. Box 191  
Columbia, South Carolina 29202



# SECTION II OF THE APPLICATION FOR A PERMIT OR LETTER OF PERMISSION AND JURISDICTIONAL DETERMINATION

Applicant:	File Number:	Date:
Attached is:	See Section below	
<input type="checkbox"/>	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
<input type="checkbox"/>	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
<input type="checkbox"/>	PERMIT DENIAL	C
<input checked="" type="checkbox"/>	APPROVED JURISDICTIONAL DETERMINATION	D
<input type="checkbox"/>	PRELIMINARY JURISDICTIONAL DETERMINATION	E

**SECTION II OF THE APPLICATION FOR A PERMIT OR LETTER OF PERMISSION AND JURISDICTIONAL DETERMINATION**  
 This section contains the information you must provide to the Corps of Engineers to complete your application for a permit or letter of permission and jurisdictional determination. It is divided into five sections, A through E, corresponding to the options you selected in Section I of this form. You must complete the section that applies to your application.

## A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

## B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

**C: PERMIT DENIAL:** You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

## D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the Division Engineer, South Atlantic Division, 60 Forsyth St, SW, Atlanta, GA 30308-8801. This form must be received by the Division Engineer within 60 days of the date of this notice.

**E: PRELIMINARY JURISDICTIONAL DETERMINATION:** You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is **not** appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

**SECTION II REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT**

**REASONS FOR APPEAL OR OBJECTIONS:** (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

**ADDITIONAL INFORMATION:** The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

If you have questions regarding this decision and/or the appeal process you may contact the Corps biologist who signed the letter to which this notification is attached. The name and telephone number of this person is given at the end of the letter.

If you only have questions regarding the appeal process you may also contact the Coordinator for Appeals in our South Atlantic Division Office in Atlanta, Georgia at (404) 562-5136.

60 Forsyth St. SW Atlanta, GA 30308-8801

**RIGHT OF ENTRY:** Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

\_\_\_\_\_  
Signature of appellant or agent.

Date:

Telephone number:



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

March 31, 2017

Lt. Colonel Matthew Luzzatto  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Luzzatto:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation and the discharge of fill material, in waters of the United States to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion and Horry Counties, South Carolina. In detail, the I-73 project will include permanent placement of fill materials structures in a total of 4,643 linear feet of stream and a total of 267.2 acres permanent fill, 17.1 acres permanent clearing, 4.4 acres excavation, and 48.9 acres temporary clearing of wetlands as well as 4.6 acres of open water impacts.

The U.S. Environmental Protection Agency Region 4 received a re-evaluation package for the I-73 project electronically on March 2, 2017. This package included a response to previous comments and an updated compensatory mitigation plan. As background, the project was initially put on public notice in 2011. The EPA expressed concerns with the applicant's compensatory mitigation plan in letters dated March 28, 2011, April 28, 2011, January 7, 2013, September 11, 2013, and July 29, 2014. The project was subsequently withdrawn and resubmitted with a revised mitigation plan pursuant to the JPN dated July 8, 2016. The EPA provided a comment letter on the new JPN and mitigation plan on September 6, 2016. The comment letter requested additional information on preservation portions of the plan and details such as objectives; a site protection instrument; a baseline data collection plan for biotic communities, hydrology, etc.; determination of credits; a mitigation work plan; a maintenance plan, performance standards; monitoring requirements; a long-term management plan; an adaptive management plan; and financial assurances, as required in the 2008 Mitigation Rule.

The applicant's revised mitigation plan is to preserve and enhance waters of the United States on a tract of land known as Gunter's Island. The tract is 6,134 acres in size with 89,836 linear feet of stream preservation and enhancement and 4,583.1 acres of wetland preservation and enhancement. The tract would then be transferred by fee simple ownership to South Carolina Department of Nature Resources (SCDNR) to become part of the Heritage Trust Program.

The applicant has addressed the EPA's previous comment concerning the quality of preserved wetlands as a primary part of the mitigation plan, laying out how the wetlands met the five requirements of preservation in the 2008 Mitigation Rule. See 33 CFR § 332.3(h). Further, the applicant assessed the functions of the wetlands as well as the potential functional lift through enhancement and restoration projects using the North Carolina Wetland Assessment Method.

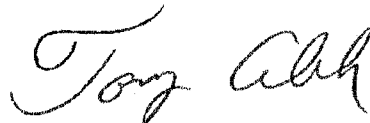
To further alleviate concerns that the mitigation plan was primarily preservation and would not meet the goals of the no net loss wetland policy, the applicant has agreed to include enhancement and restoration in the mitigation plan through road and culvert removal which will reestablish hydrologic connectivity across the site. The work will be completed by the SCDNR. The SCDNR has entered into an Memorandum of Agreement with the applicant, SCDOT, which will include a provision that the proposed work is completed in accordance with the mitigation plan. The SCDNR will perform the removal of the culverts and associated roadway fill to return the area as close as possible back to original grade. Through long-term management of the site, SCDNR will also remove planted pine and restore the reference wetland community in areas of historic silvicultural activity.

The updated mitigation plan now includes all the components required by the 2008 Mitigation Rule: objectives; a site protection instrument; a baseline data collection plan for biotic communities, hydrology, etc.; determination of credits; a mitigation work plan; a maintenance plan; performance standards; monitoring requirements; a long-term management plan; an adaptive management plan; and financial assurances.

Based on the above observations, the EPA has determined that all concerns regarding mitigation have been addressed and has no further comments.

Thank you for considering these comments in your permit review and issuance process. If you have any questions, please contact Mr. Kelly Laycock at [laycock.kelly@epa.gov](mailto:laycock.kelly@epa.gov) or (404) 562-9132 for more information.

Sincerely,



Tony Able  
Chief

Wetlands and Streams Regulatory Section

cc: Mr. Stephen Brumagin, U.S. Army Corps of Engineers  
Mr. Travis Hughes, U.S. Army Corps of Engineers  
Mr. Mark Caldwell, U.S. Fish and Wildlife Service  
Mr. Pace Wilber, National Marine Fisheries Service  
Ms. Susan Davis, South Carolina Department of Natural Resources  
Mr. Mark Giffin, South Carolina Department of Health and Environmental Control  
Mr. Chuck Hightower, South Carolina Department of Health and Environmental Control



**UNITED STATES DEPARTMENT OF COMMERCE**

National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southeast Regional Office  
263 13th Avenue South  
St. Petersburg, Florida 33701-5505  
<http://sero.nmfs.noaa.gov>

August 13, 2014

F/SER47:JD/pw

(Sent via Electronic Mail)

Lt. Col. John Litz, Commander  
Charleston District, Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Attention: Stephen Brumagin

Dear Lt. Colonel Litz:

NOAA's National Marine Fisheries Service (NMFS) reviewed the South Carolina Department of Transportation's (SCDOT) Permittee-Responsible Final Mitigation Plans for Joiner Bay and Long Branch Creek, both dated June 30, 2014. The purpose of the mitigation plans is to compensate for 342.1 acres of freshwater wetland impacts and 4,643 linear feet of stream impacts from construction of Interstate 73, an 80-mile, four-lane roadway crossing three hydrologic unit codes and two ecoregions in South Carolina. As part of the Agency Coordination Team (ACT), NMFS has commented previously on earlier versions of the mitigation plans. In general, NMFS finds the stream mitigation and wetland mitigation plans remain inadequate to offset the loss of aquatic resources from the proposed project.

Long Branch Creek (LBC) Mitigation Plan

The LBC mitigation site is approximately ten miles east of I-95 and just north of Little Pee Dee State Park. The plan is designed to restore and enhance approximately 3,844 and 3,218 linear feet of stream, respectively, along Long Branch and enhance approximately 5,655 linear feet of stream along Indian Pot Branch. Restoration is also proposed for approximately 1,650 linear feet along two unnamed tributaries (UT1 and UT2) that flow into Long Branch. Work includes stabilizing stream banks, planting vegetated buffers, removing invasive species, replanting native hardwoods, improving drainage pathways, and installing appropriate in-stream structures.

The ACT has raised many concerns with the LBC mitigation plan. For the following reasons, NMFS believes the restoration and enhancement of LBC is not suitable compensation for stream impacts from the construction of I-73:

- The LBC mitigation plan does not meet the ACT's goal of a landscape scale mitigation project. The proposed I-73 impacts would occur along approximately 80 miles long area whereas the mitigation site is approximately 2.8 miles.
- LBC's value as a mitigation site is low because Long Branch flows into a dammed pond in Little Pee Dee State Park creating a physical barrier for fish passage and impairing water quality.



- The LBC mitigation plan does not include water quality improvement success criteria, and pollutants may enter the streams from on-site agricultural ditches and farm crossings.
- Inadequate protection by buffers is proposed, especially along the western side of Indian Pot Branch at the southern extent of the site.
- The cumulative impact factor on the mitigation worksheets continue to be based on stream impacts for that watershed, not the entire project. All cumulative impact factors should be 1.5.

#### Joiner Bay (JB) Mitigation Plan

The 973-acre, JB mitigation site is northwest of the community of Bayboro in Horry County, approximately 10 miles north of Conway. The plan is designed to restore and enhance 116.2 acres and 61.3 acres of wetland, respectively; remove 21 acres of fill; enhance 594.1 acres of soil surface hydrology and vegetation; and enhance 32.1 acres of vegetation. Work to restore groundwater, surface flow dynamics, and wetland hydrology includes removing access roads and logging decks, installing ditch plugs, backfilling ditches, constructing ephemeral pools, scarifying soils in areas previously filled, and mechanically removing raised beds in silviculture stands. In addition, SCDOT would replace the loblolly pine plantation with a fire-managed, wet pine flat/headwater pocosin mosaic.

For the following reasons, NMFS believes the restoration and enhancement of JB is not suitable compensation for stream impacts from the construction of I-73:

- According to SCDOT, the plan has the potential to generate 2,195.6 credits while the proposed project would necessitate 3,485.65 credits. The plan is deficient in meeting required credits.
- The proposed hydrologic success criterion is limited to meeting jurisdictional wetland status (saturation or inundation within the top 12 inches of soil for a minimum of 7 percent of the growing season during average climatic conditions). This criterion does not mean the restored wetlands (116.2 acres) would provide all appropriate and necessary ecosystem services by the end of the project. Further demonstrating the inadequacy of this success criterion is the fact that Figure 13 of the plan shows 21 of 25 gauge already stations met this standard in 2011. Hydrologic success criteria should be tied to a reference site.
- The modeling results on page 50 of the plan indicate site hydroperiods historically averaged 25 percent of growing season (range 5 to 64 percent). This finding further justifies why the hydrologic criterion is not appropriate.
- The model also identifies that currently only 62.6 acres are hydrologically impaired and 39.7 acres of hydrology impacted areas within hydric soils are present on the site. Therefore, it is unclear how the SCDOT has determined that 594.1 acres of soil surface hydrology would be enhanced.
- The influence of the ditches to existing wetlands has not been identified. It is possible that wetlands far from ditches may not necessitate enhancement and therefore may not be appropriate to include in the mitigation acreage.

In summary, NMFS recommends the SCDOT pursue other stream mitigation sites and further investigate the true potential and likely success of the Joiner Bay site. NMFS continues to

recommend the Charleston District not issue a permit for the proposed project until all mitigation plans are approved by the ACT.

NMFS appreciates the opportunity to provide these comments. Please direct related correspondence to the attention of Ms. Jaclyn Daly-Fuchs at our Charleston Area Office. She may be reached at (843) 762-8610 or by e-mail at [Jaclyn.Daly@noaa.gov](mailto:Jaclyn.Daly@noaa.gov).

Sincerely,



/ for

Virginia M. Fay  
Assistant Regional Administrator  
Habitat Conservation Division

cc:

COE, Stephen.A.Brumagin@usace.army.mil  
DHEC, trumbunt@dhec.sc.gov  
SCDNR, mixong@dnr.sc.gov  
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F/SER47, Jaclyn.Daly@noaa.gov



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69-A Hagood Avenue  
CHARLESTON, SOUTH CAROLINA 29403-5107

October 2, 2013

Regulatory Division

Mr. Kelly Laycock, USEPA-Region 4  
Wetland and Marine Regulatory Section  
Atlanta Federal Center  
61 Forsyth Street  
Atlanta, Georgia 30303-8960

Dear Mr. Laycock:

This is in regard to an application for a Department of the Army permit (# 2008-1333-DIS) by South Carolina Department of Transportation (SCDOT) for the I-73 project in Marlboro, Dillon, Marion, and Horry Counties.

Enclosed is a copy of the report, "Groundwater Modeling, Joiner Bay Wetland Mitigation Site, Horry County, South Carolina" dated September 5, 2013. This report was prepared by EBX to provide additional groundwater modeling information on the Joiner Bay Wetland mitigation site. The Corps is forwarding this plan for your review and your records. This report was generated as a result of the agency comments provided to SCDOT on the Joiner Bay wetland mitigation site. At this time the Corps is not requesting comments from your agency on this report, however, if you do have comments, feel free to send them to me. I anticipate that information within this report (groundwater modeling) will be one of the topics for discussion at future agency meetings on mitigation for the proposed I-73 project.

If you have any questions concerning this matter, please contact me at 803-253-3445.

Respectfully,

A handwritten signature in black ink, reading "Stephen A. Brumagin".

Stephen A. Brumagin  
Project Manager

Enclosure  
Groundwater Modeling report



# **GROUNDWATER MODELING**

## **Joiner Bay Wetland Mitigation Site Horry County, South Carolina**

Prepared for:



10055 Red Run Blvd., Suite 130  
Owings Mills, MD 21117

Prepared by:



1616 East Millbrook Road, Suite 310  
Raleigh, North Carolina 27609

September 5, 2013



## **Groundwater Modeling**

### **Introduction**

Groundwater modeling was performed in order to estimate the lateral effects of ditches through wetlands at the Joiner Bay wetland mitigation site (the Site). The model results were used to determine the amount of effectively drained and hydrologically impaired wetlands at the Site. Effectively drained wetlands, as used here, are defined as the width of that strip of land adjacent to the ditch that has had its hydrology modified such that it no longer has wetland hydrology. Wetland hydrology is defined here as groundwater within 12 inches of the ground surface for 5 percent of the growing season. The zone of wetland degradation is defined as those areas that achieve the 5 percent wetland hydrology criterion but exhibit hydroperiods less than antecedent or post restoration conditions (i.e., 12.5 percent of the growing season). The zones of effectively drained wetlands and hydrologically impaired wetlands were used to predict the areas of wetland restoration that may result due to effective ditch removal (i.e., plugging and backfill). The amounts of effectively drained and impaired wetlands were used to determine of credit in the Permittee-Responsible Wetland Mitigation Plan. This detailed report is provided to document the process, assumptions, and data sources used to estimate amounts of effectively drained and impaired wetlands in response to a request from the South Carolina Department of Natural Resources.

### **Model Description**

Groundwater modeling was performed to characterize the water table under current and antecedent drainage conditions. DRAINMOD groundwater modeling software was utilized to simulate subsurface conditions, groundwater behavior, and the lateral effect of ditches within the Site on the depth to the groundwater table. This model was developed by R.W. Skaggs, Ph.D., P.E., of North Carolina State University to simulate the performance of water table management systems implemented by parallel drains. Dr. Skaggs recently developed a method for determining the lateral effect of a single drainage ditch on wetland hydrology (Skaggs *et al.* 2005). This method employs the Boussinesq equation supplied with input parameters calibrated to reflect threshold drainage intensities determined for local drainage conditions in each North Carolina county. Since these threshold drainage densities are not available for South Carolina counties, the Boussinesq equation can be used to estimate the effect of a single ditch on water table drawdown (Skaggs 1976) in a similar manner.

DRAINMOD was originally developed to simulate the performance of agricultural drainage and water table control systems on sites with shallow water table conditions by simulating changes in elevation of the water table in response to measured temperature and rainfall considering characteristics of the Site including drain spacing, hydraulic conductivity of the soil, soil surface storage capacity, and the depth to which site vegetation can draw groundwater. DRAINMOD predicts water balances in the soil-water regime at the midpoint between two drains of equal elevation. The model is capable of calculating hourly values for water table depth, surface runoff, subsurface drainage, infiltration, and actual evapotranspiration over long periods referenced to climatological data.

The lateral effect of a ditch, as used here, is defined as the width of that strip of land adjacent to the ditch that has had its hydrology modified such that it no longer has wetland hydrology, as judged by the long-term average water table depth. Wetland hydrology is defined for the model as groundwater within 12 inches of the ground surface for 14 consecutive days during the growing season (5 percent of the growing season). Wetland hydrology is achieved in DRAINMOD if the groundwater threshold (i.e., within 12 inches of the ground surface for 14 consecutive days during the growing season) is met for one half of the years modeled (i.e. 42 out of 83 years). The zone of wetland degradation is defined as those areas that achieve the 5 percent wetland hydrology criterion but exhibit hydroperiods less than antecedent or post-restoration conditions (i.e., 12.5 percent of the growing season).

The DRAINMOD model has been used to calculate the lateral effects of ditches in wetlands (Skaggs *et al.* 2005). DRAINMOD has been used for mitigation planning in the Coastal Plain (Huffman *et al.* 2007). It is recommended to establish the degree of saturation of a wetland under a wide range of drained and non-drained conditions by the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS) (NRCS 1997). The U.S. Army Corps of Engineers has, since at least 1998, suggested the use of DRAINMOD to determine the hydrology of wetland sites, for groundwater modeling in conjunction with short duration monitoring studies (USACE 2005), and determining whether wetland hydrology is present when an indicator-based wetland hydrology determination gives misleading results (USACE 2010).

The reliability of DRAINMOD has been tested for a wide range of soil and climatological conditions. Results of tests on a variety of sites indicate that the model can be used to reliably predict water table elevations and drain flow rates (He *et al.* 2002, Chescheir *et al.* 1994, Amatya 1993). Methods for evaluating water balance equations and equation variables are discussed in detail in Skaggs (1980). DRAINMOD has also been used to evaluate wetland hydrology by Skaggs *et al.* (1993).

The DRAINMOD model makes the following assumptions:

- (i) Streamlines are assumed to be horizontal and equipotential lines are vertical (Dupuit – Forchheimer assumption) within the saturated zone as in nearly level terrain.
- (ii) Soils are assumed to be drained to equilibrium (steady state) as in shallow water table soils.
- (iii) Each field is considered to have uniform material properties throughout (homogeneous) In particular, void geometry for the porous medium is assumed to be constant in all directions (isotropic), i.e., hydraulic conductivity in any direction is the same.

This model application makes the following assumptions:

- (i) Water table levels can be predicted for individual soil plots in a landscape by treating each plot in isolation, and each plot is calibrated separately from the other plots;

- (ii) Deep seepage losses are virtually zero, or so small that they can be included with losses by subsurface drainage.

### **Groundwater Modeling Application**

DRAINMOD simulations were used to model the current zone of wetland loss for parallel ditches at the Site. The Boussinesq equation, with drawdown times of 5 and 12.5 percent of the growing season, was used to estimate the lateral effect and zone of wetland degradation of the collector ditch running down the center of the Site as well as boundary and roadside ditches bordering the Site. Model applications and results are summarized below.

DRAINMOD was used to model the lateral effect of the parallel onsite ditches (Figure 1 - D3, D4, D5, D7, D8, D9, and D10). This effect was estimated by determining the threshold drain spacing of parallel ditches that would result in the area adjacent to the ditches meeting the wetland hydrology criterion in just over one-half of the years simulated. Ditches spaced any closer than this threshold distance would result in the entire area between the ditches experiencing a loss of wetland hydrology. If ditches were spaced any further apart than the threshold distance, there would be a strip between the ditches which would still meet the wetland hydrology criteria. Areas outside of one-half of the threshold distance are predicted to have wetland hydrology; therefore, one-half of this threshold spacing provides a safe-side estimate of the drainage effect that the parallel onsite ditches will have. One-half the threshold spacing is the lateral effect reported for the parallel ditches in Table 2 (D3, D4, D5, D7, D8, D9, and D10). The lateral effect for the boundary ditch (Figure 1 - D14), onsite single ditches (Figure 1 - D6, D15, D16), roadside ditches (Figure 1 - D12, D13, D17, and D18), and the collector ditches (Figure 1 - D1 and D2) in Table 1 (D1, D2, D6, D12, D13, D14, D15, D16, D17, and D18) were estimated using the Boussinesq equation (Skaggs 1976). Soil characteristics input to the Boussinesq equation were obtained from the soil characteristics of the adjacent field.

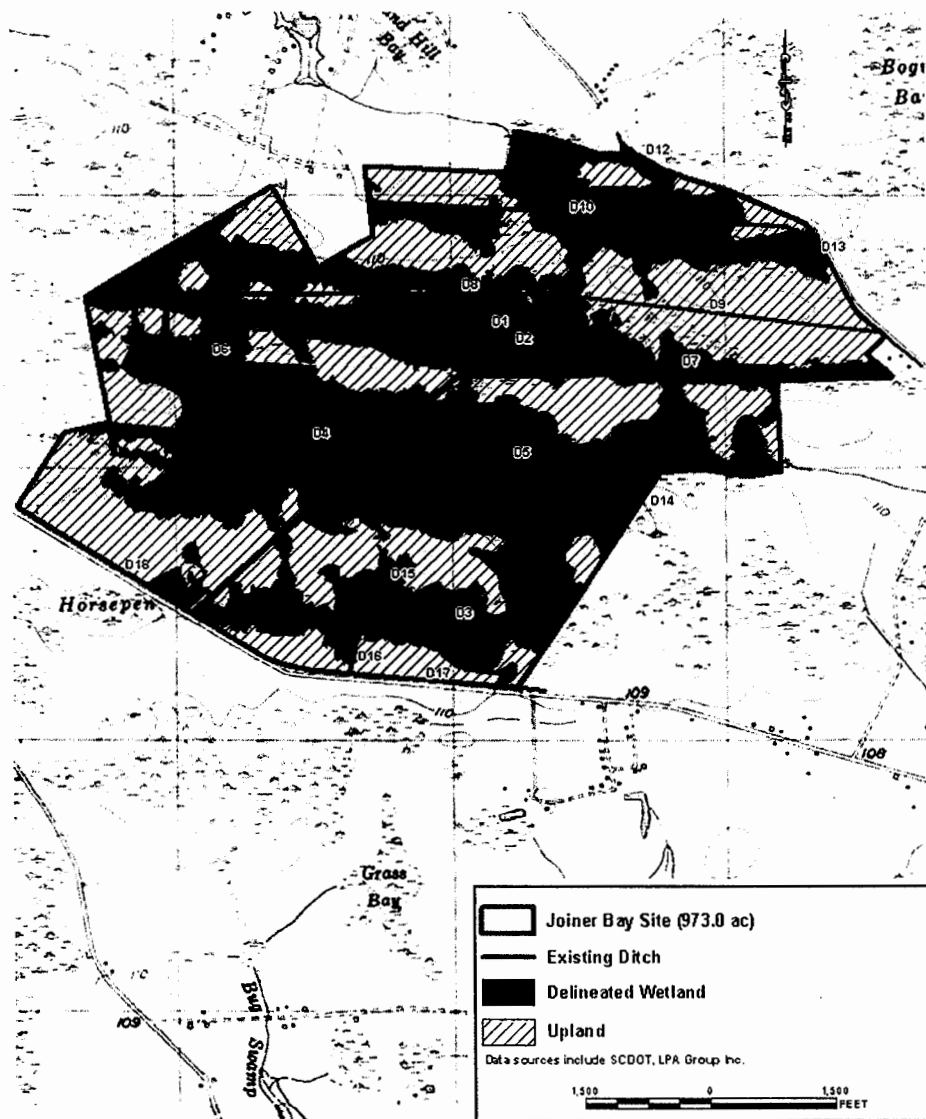


Figure 1. Existing ditches.

### Input Parameters

As briefly mentioned previously, important inputs into DRAINMOD include precipitation and a variety of site characteristics. Inputs for this application of the model fall into the following general categories: soil, weather, wetland hydrologic criteria, and drainage features.

Inputs for soil parameters such as the water table depth/volume drained/upflux relationship, Green-Ampt parameters, and the water content/matric suction relationship were identified from published sources utilizing the method described in Amatya *et al.* (2001). The Site is mapped as predominantly Pocomoke fine sandy loam along with smaller areas of Nansemond loamy fine sand, Osier loamy sand, Johnston loam, and Woodington fine sandy loam. Areas bounded by the parallel and collector ditches were modeled individually in DRAINMOD (Figure 2). The predominant soil in each separately modeled area was used to define inputs to the model. Amatya *et al.* (2001) describe a

process for using the County Soil Survey Report's mapped series to collect soil input parameters for DRAINMOD. In the absence of undisturbed soil samples obtained from the field, the taxonomic class of the mapped series is matched to the class of soil series for which soil hydraulic properties for DRAINMOD have been published. Of the soil series closely resembling Pocomoke with published soil information, Cape Fear loam (Fine, mixed, semiactive, thermic Typic Umbraquults) was judged to most closely resemble the soils mapped as Pocomoke (Coarse-loamy, siliceous, active, thermic Typic Umbraquults) at the Site. Portsmouth sandy loam (Fine-loamy over sandy or sandy-skeletal, mixed, semiactive, thermic Typic Umbraquults) closely resembles Pocomoke as well and enabled a better calibration fit for fields 1 and 6 (Figure 2). Of the soil series closely resembling Nansemond loamy fine sand with published soil information, Goldsboro sandy loam was judged to most closely resemble the soils mapped as Nansemond at the Site. Soil water characteristic, drainage volume, upward flux, infiltration rate, depth to impermeable layer, and hydraulic conductivities were assigned for the Goldsboro (Skaggs and Nassahzadeh-Tabrizi, 1986) and Cape Fear (Diggs 2004).

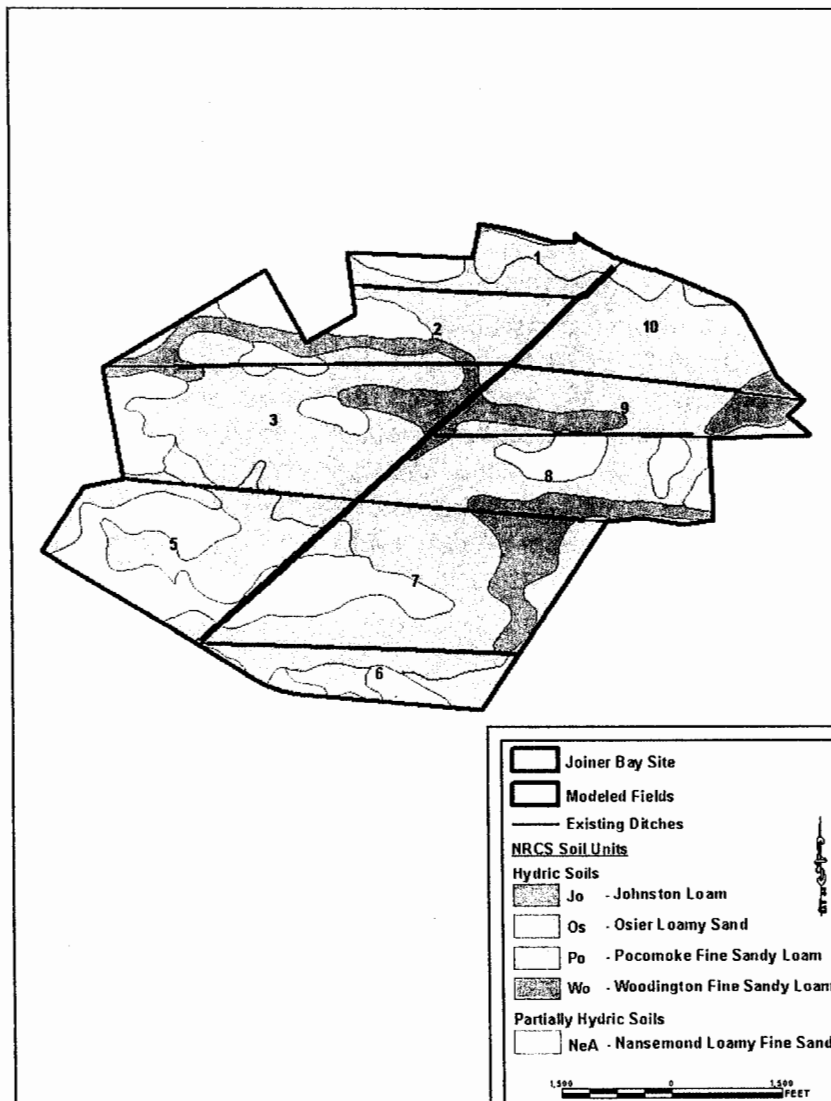


Figure 2. Modeled Fields

Weather data for an 83-year period were obtained for Conway, SC. Missing temperature measurements were estimated to be the average of the day before and the day after. If either the day before's or the day after's measurement was also missing, the missing temperature measurement was estimated from the average for its Julian date for the period of record. Precipitation measurements were captured at an onsite rain gage from 1/9/2011 to 6/6/2013. Precipitation measurements before 2011 were collected from Conway, SC (USC00381997). Missing precipitation measurements were estimated from the next nearest weather station with a measurement for that date. Other weather stations used in this analysis were (in order of preference) Loris (USC00385306), Loris 2 (US1SCHR0033), Myrtle Beach (USC00386153), Myrtle Beach 2 (USC00386163), and Marion (USC00385509). Potential evapotranspiration rates were calculated based on Thornthwaite's method and adjusted using monthly factors derived for Wilmington, North



Carolina. The DRAINMOD simulation was conducted for the time period from January 1930 through June 2013.

As described above, wetland hydrologic criteria are defined as groundwater within 12 inches of the ground surface for 5 percent of the growing season. Wetland degradation is defined as the result of a hydroperiod less than 12.5 percent of the growing season. For the purpose of this study, the growing season is defined as the period between March 2 and November 22 (SCS 1986). March 2 is the date, with 50 percent probability, of the last freezing temperature of 28 degrees Fahrenheit. November 22 is likewise the date of the first freezing temperature (28 degrees) in fall, five years in ten.

A topographic site survey of drainage features was conducted during July 2011. Individual ditch depths were defined as the average depth from the soil surface to the bottom of the ditch. Parallel ditches were assigned the average of each individual ditch's depth. Average ditch spacing was derived from the survey. Surface depressional storage was estimated from published ranges (Skaggs *et al.* 1994 and Skaggs 1980). Lateral and deep seepage from the field were assumed to be zero, as mentioned.

#### **Groundwater Modeling Procedure**

Due to the irregularity of the ditches and soils at the Site, the DRAINMOD model was calibrated and validated separately for each of nine fields using a short term record of observed weather and water table measurements recorded over a 2.5 year period. The calibration period was between 1/19/2011 and 6/5/2012. The validation period was between 6/6/2012 and 6/4/2013. Predicted and observed water table elevations were compared and selected model parameters were adjusted. Drain spacing and ditch depth were adjusted within the range of values present in each field. The soil's saturated hydraulic conductivity, volume drained by elevation relationship, and depth to impermeable layer were adjusted to best match groundwater gages. The agreement between observed and predicted was quantified by the statistics in Table 1 (Moriassi *et al.* 2007).

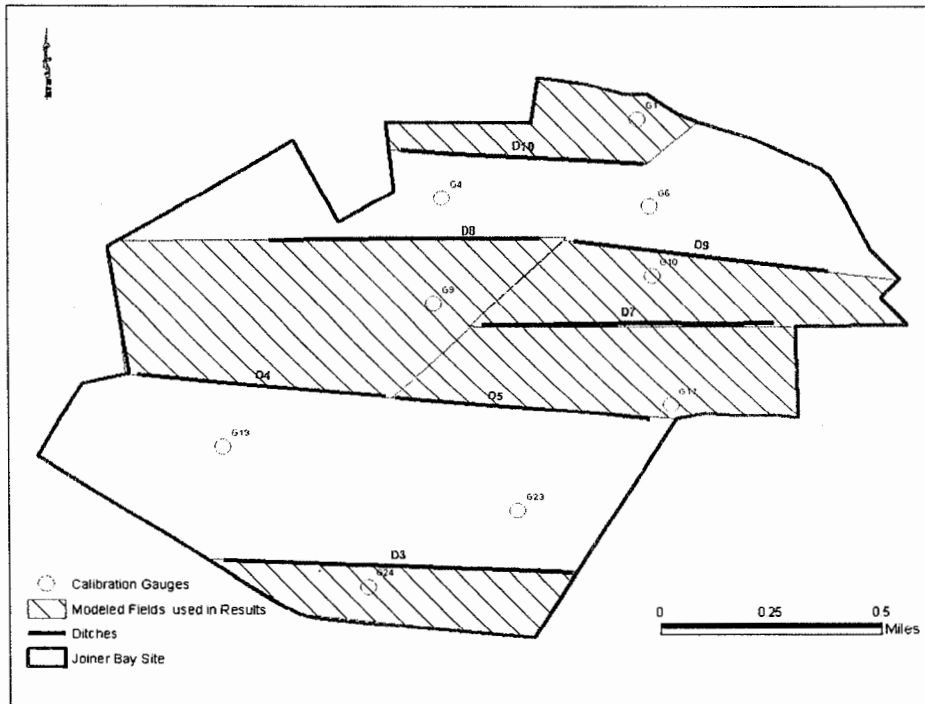


Figure 3. Modeled fields used to identify ditch impact

Table 1. Calibration statistics

Ditch	Field	Calibration						Validation					
		N-S	RMSE	PBIAS	RSR	R2	MAE	N-S	RMSE	PBIAS	RSR	R2	MAE
D10	1	0.71	25.94	-5.04	0.02	0.80	20.87	0.52	29.40	1.77	0.04	0.60	22.39
D8, D4	3	0.54	50.33	1.46	0.25	0.85	23.03	0.43	23.26	1.33	0.14	0.57	20.84
D3	6	0.69	27.16	-0.47	0.02	0.75	22.91	0.55	21.14	-6.52	0.03	0.70	15.67
D5, D7	8	0.88	14.37	-6.68	0.02	0.90	11.92	0.59	19.11	12.29	0.03	0.67	15.36
D9	9	0.80	20.08	1.97	0.02	0.85	16.83	0.55	19.66	-15.26	0.04	0.60	15.03

Calibrated ditch spacing was adjusted until the threshold ditch spacing, the spacing that resulted in water table conditions midway between the ditches that just satisfied the wetland hydrology criteria, was reached. One half the threshold drain spacing of each parallel ditch is reported as the zone of influence in Table 2. Wetlands with the water table within 12 inches of the surface for less than 5 percent are considered effectively drained. Wetlands with the water table within 12 inches of the surface for less than 12.5 percent are considered hydrologically impaired. The zone of influence reported for single ditches is the distance of water table drawdown in 5 percent and 12.5 percent of the growing season reported by the Boussinesq equation.

**Table 2. Zone of Influence**

Model	Ditch Number	Average Ditch Depth (feet)	Zone of Influence Perpendicular to Ditch	
			Effectively Drained Wetlands (feet)	Hydrological Impaired Wetlands (feet)
Estimated By DRAINMOD	D3	3.28	0-244	244-566
	D4	3.24	0-203	203-371
	D5	2.63	0-167	167-289
	D7	2.17	0-174	174-354
	D8	2.85	0-189	189-349
	D9	3.01	0-205	205-415
	D10	3.03	0-233	233-887
Estimated by Boussinesq equation	D1	4.04	0-203	203-316
	D2	4.04	0-203	203-316
	D6	1.95	0-61	61-95
	D12	2.95	0-96	96-150
	D13	2.43	0-98	98-152
	D14	3.77	0-156	156-243
	D15	2.59	0-196	196-305
	D16	2.56	0-68	68-105
	D17	1.57	0-41	41-64
	D18	1.61	0-109	109-170

DRAINMOD was used to estimate the historic drainage conditions at the Site by simulating the removal of ditches. Ditch depth was reduced to 6 inches to simulate an onsite swale and ditch spacing was increased to move all drainage off-site (9842.5 feet or 3000 meters). DRAINMOD estimated these areas to have the water table within 1 foot of the surface for greater than 22% of the growing season, historically.

Groundwater modeling was performed for the Site to simulate long-term hydrologic processes in order to characterize the annual water budget under existing and post-restoration drainage conditions. DRAINMOD was utilized to simulate subsurface conditions and groundwater behavior within the Site on the depth to the groundwater table for the period of record as described above. The model is capable of calculating hourly values for water table depth, surface runoff, subsurface drainage, infiltration, and actual evapotranspiration over long periods referenced to climatological data.

Precipitation is the total water input to the Site. Water can leave the Site as runoff before it infiltrates into the soil. Two losses can occur from the water that has infiltrated the soil. The water can either be lost to evapotranspiration or to subsurface drainage. The volume remaining after evapotranspiration or to subsurface drainage is stored in the soil

water table which rises and falls with additions and losses. The water budget equation used in this study is:

$$\Delta S = P - ET - R_o - Q$$

where  $\Delta S$  represents the change in water storage (inches) in both the saturated and unsaturated zones,  $P$  is precipitation (inches),  $ET$  is ecosystem evapotranspiration (inches),  $R_o$  is the surface runoff (inches), and  $Q$  is groundwater outflow (inches).  $R_o$  quantifies the amount of water that was lost from the system when the available surface storage was exceeded. The  $Q$  term is the amount of water lost to subsurface drainage.

**Table 3. Annual Water Budget Under Existing and Post-Restoration Conditions**

<b>Existing Conditions</b>				
<b>Component</b>	<b>Average</b>	<b>Standard deviation</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Precipitation (P) (in)</b>	51.48	8.48	31.81	74.38
<b>Evapotranspiration (ET) (in)</b>	43.68	2.94	34.73	51.57
<b>Drainage (Q) (in)</b>	6.69	4.42	0.11	16.58
<b>Runoff (<math>R_o</math>) (in)</b>	1.98	2.68	0.00	12.35
<b><math>\Delta S</math> (in)</b>	-0.93	4.26	-10.03	10.38
<b>Post-Restoration Conditions</b>				
<b>Precipitation (P) (in)</b>	51.48	8.48	31.81	74.38
<b>Evapotranspiration (ET) (in)</b>	44.18	2.89	35.83	52.56
<b>Drainage (Q) (in)</b>	4.43	3.54	0.00	12.19
<b>Runoff (<math>R_o</math>) (in)</b>	3.57	3.73	0.00	16.04
<b><math>\Delta S</math> (in)</b>	-0.78	4.40	-10.17	10.41

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REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
CHARLESTON DISTRICT, CORPS OF ENGINEERS  
69-A Hagood Avenue  
CHARLESTON, SOUTH CAROLINA 29403-5107

July 10, 2014

Regulatory Division

Mr. Kelly Laycock, USEPA-Region 4  
Wetland and Marine Regulatory Section  
Atlanta Federal Center  
61 Forsyth Street  
Atlanta, Georgia 30303-8960

Dear Mr. Laycock:

This is in regards to an application for a Department of the Army permit (# 2008-1333-DIS) by South Carolina Department of Transportation (SCDOT) for the Interstate I-73 project in Marlboro, Dillon, Marion, and Horry Counties, South Carolina.

Enclosed you will find two CD's containing SCDOT's I-73 Final Stream Mitigation Plan for the Long Branch mitigation site and I-73 Final Wetland Mitigation Plan for the Joiner Bay mitigation site, as revised and submitted to the Corps on July 1, 2014. With this July 1, 2014 plan submission; SCDOT included a cover letter indicating that outstanding issues remain to be resolved related to mitigation for the I-73 project. Specifically, SCDOT is unable to provide finalized plans which; identify additional mitigation opportunities to address current mitigation credit shortfall for this project, identify long term stewards for each of these mitigation sites, nor provide long term financial assurance plans for each of these mitigation sites. Since the mitigation plans your agency had previously reviewed for these sites have been revised, the Corps is forwarding them to you for your review and comments. This letter serves as a written request for agency comments on both of these revised mitigation plans. The Corps would ask to have receipt of agency written comments for this mitigation plan by **August 11, 2014**. If no response is received by that date, I will assume that your agency's concerns have been satisfied and that you have no further objections to permit issuance.

If you have any questions concerning this matter, please contact me at 803-253-3445.

Respectfully,

A handwritten signature in black ink, reading "Stephen A. Brumagin", is positioned above the printed name.

Stephen A. Brumagin  
Project Manager

Enclosures:

2 CD's

- Joiner Bay Wetland Mitigation Site Final Mitigation Plan SAC 2008-1333-DIS
- Long Branch Steam Mitigation Site Final Mitigation Plan SAC 2008-1333-DIS

cc:

Travis G. Hughes, Chief-Special Projects (w/o enclosures)

Sean Connolly, Environmental Permit Division Manager (w/o enclosures)

South Carolina Dept. of Transportation

P.O. Box 191

Columbia, South Carolina 29202-0191

Gordon Murphy (w/o enclosures)

Natural Resources Technical Manager

The LPA Group Inc., A Unit of Michael Baker Corp.

700 Huger Street

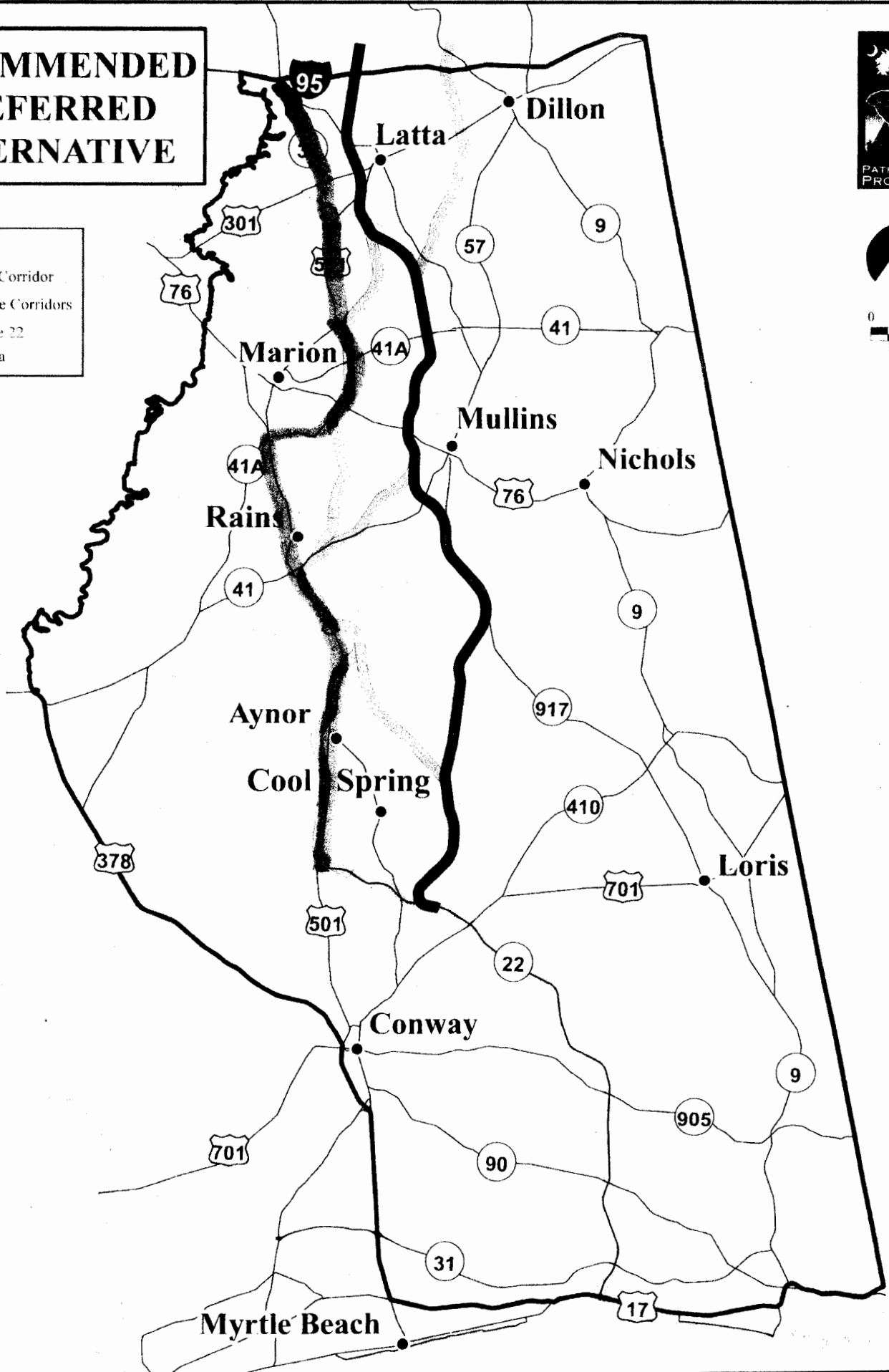
Columbia, South Carolina 29201



# RECOMMENDED PREFERRED ALTERNATIVE

## Legend

- Preferred Corridor
- Alternative Corridors
- S.C. Route 22
- Study Area



ROD

2/8/2008



## WHAT DECISION WAS REACHED?

The South Carolina Department of Transportation (SCDOT), in association with the Federal Highway Administration (FHWA), proposes to construct Interstate 73 (I-73) on new alignment in northeastern South Carolina. The portion of the project to be analyzed in this environmental impact statement (EIS) is located in the northeastern corner of South Carolina. The project study area extends southeast from I-95, and is bounded to the northeast by the North Carolina/South Carolina state line, to the southeast by U.S. Route 17, and to the southwest by the eastern edge of the Great Pee Dee River floodplain, U.S. Route 378, and U.S. Route 501. The project would extend from I-95 in Dillon County, through Marion County and into Horry County. It would terminate at S.C. Route 22 in Horry County, which would be made part of I-73. An estimated 400-foot wide right-of-way would be acquired where frontage roads would be needed. Where frontage roads are not required, an estimated 300-foot wide right-of-way would be adequate.

The selected alternative is "Alternative 3." Alternative 3 is the selected alternative because it would have the fewest impacts to wetlands, lowest impacts to farmlands, least impact to cultural resources, lowest cost to construct, and would be the least disruptive to existing traffic patterns to construct. The selected alternative is 43.5 miles long and would have interchanges with I-95, U.S. Route 501, S.C. Route 41A, U.S. Route 76, S-308, and S.C. Route 22. The selected alternative and its impacts have been fully discussed in the Final EIS that was approved on November 29, 2007.

## WHICH ALTERNATIVES WERE CONSIDERED?

The Final EIS studied in detail the following alternatives: the No-build Alternative, and eight Build Alternatives (Alternative 1, 2, 3, 4, 5, 6, 7, and 8). Federal and state regulatory agencies provided information pertinent to their particular areas of expertise throughout the EIS process and participated in the selection of the data layers used by the Corridor Analysis Tool (CAT). There were 26 meetings with the Agency Coordination Team to develop and evaluate the alternatives. Initially there were 141 potential alternatives developed by the CAT for this project. Alternative Evaluation Categories were developed to define and prioritize the issues of concern during alternative development. Many of the preliminary alternatives were eliminated because they did not meet the Purpose and Need or had extensive environmental impacts (refer to Chapter 2 of the Final EIS). This process led to the eight Reasonable Build Alternatives that received an additional level of analysis and coordination efforts.

The Final EIS contains an adequate description of the project's Purpose and Need, the alternatives, and the impacts. The detailed analyses of the major environmental impacts have been summarized in the Executive Summary of the Final EIS. The environmental consequences that would result from implementation of the selected alternative are impacts to wetlands of approximately 313 acres (which includes approximately 3,860 linear feet of stream impacts), the relocation of 74 residences, 3 commercial establishments, and one government facility (a waste transfer station), impacts to a Section 4(f) resource, and potential noise impacts to 13 residences.



The No-build Alternative was eliminated because it would not satisfy the project's Purpose and Need, because it would not provide:

- **A direct link between I-95 and the Myrtle Beach region to improve system linkage.** I-73 has been named as a High Priority Corridor (Number 5) by the U.S. Congress. This section of I-73 is needed to provide the connection between the Myrtle Beach region and I-95. Without this link, the planned High Priority Corridor between Michigan and South Carolina would not be completed;
- **Opportunities for economic growth and tourism.** The interstate would provide economic opportunities to the project study area that would result from the connectivity to the interstate system. Dillon and Marion Counties are two of the most economically depressed counties in the state. They have high unemployment and low income levels. A key to maintaining and improving tourism is the ability of the tourist to readily access destinations. The connection provided by I-73 would increase the travel efficiency for tourists traveling through South Carolina;
- **The facilitation of a more effective evacuation of the Myrtle Beach region during emergencies.** In 2030 the estimated evacuation times on U.S. Route 501, without the construction of I-73, would range between 24 and 37.4 hours depending upon the category of hurricane. This is an estimated eight to 13.2 hours longer than the existing evacuation time. Hurricane evacuation times would be dramatically reduced with any of the Build Alternatives. Because I-73 is a controlled-access facility, it also would make lane reversal, switching in-bound travel lanes to handle out-bound traffic, simpler. I-73 would allow people leaving the Myrtle Beach area an alternative to the bottleneck on U.S. Route 501 and provide additional capacity for evacuees.
- **A reduction in existing traffic congestion on roads accessing the Myrtle Beach region.** The construction of the interstate would result in savings to the traveling public resulting from increased travel efficiency, reflected in reduced travel times on the local roadways. The diversion of traffic to the interstate from the local road network that would result from the construction of the proposed interstate would improve safety on the local network. This would take persons unfamiliar with the local roads off of that network and put them on the interstate, a more familiar situation for those traveling long distances. It would also remove truck traffic from the local network. Traffic congestion is currently a problem for this area primarily on "change-over day" when the tourists at the beach leave and new tourists arrive. This causes delays along U.S. Route 501 from Aynor south. By providing an interstate connection from S.C. Route 31 and U.S. Route 17 all the way to I-95, a high-speed alternative route to bypass this congestion would be available. The traffic travel savings between the No-Build and several of the Build Alternatives show savings of as much as 25 percent for the 65 mile trip, based upon the Annual Average Daily Traffic volumes. The travel time savings between the No-Build



and the Build Alternatives for the peak season, June 1 through August 31, would be as much as 29 percent for the 65 mile trip;

- **A plan for future provision of a multimodal facility.** Within its right-of-way I-73 includes the potential for two rail corridors that would allow for future passenger and/or freight rail. This has the potential for providing additional rail connectivity to northeastern South Carolina.

#### WOULD THE PROJECT IMPACT ANY SECTION 4(f) RESOURCES?

The Final EIS includes the Final Section 4(f) Statement (Appendix E). Based on the Section 4(f) evaluation, the proposed action would impact the Vaughn Tract of SCDNR's Little Pee Dee Heritage Preserve, a Section 4(f) property. An estimated 30 acres would be used from the Vaughn Tract to construct a crossing of the Little Pee Dee River parallel to the existing S.C. Route 917 crossing. This alignment shift through the Vaughn Tract was done with the Agency Coordination Team's advice and consent. It was done to keep impacts within the Little Pee Dee River system parallel to an existing crossing instead of on a new location crossing, which was viewed as more disruptive to the natural environment. This would result in less than one percent (0.78 percent) of the total acreage of the Vaughn Tract being used for right-of-way. Access to the Heritage Preserve would be maintained; however, recreational activities within the immediate area of construction, such as fishing in the area of bridge construction, would be temporarily disrupted. No noise impacts are anticipated to the Little Pee Dee Heritage Preserve.

A mitigation plan was developed in cooperation with the S.C. Department of Natural Resources (SCDNR), which provides compensation for a 10 to 1 mitigation ratio for the 30 acres of Heritage Preserve property impacted by the project. SCDNR would use these monies to purchase replacement property.

#### WERE ANY MEASURES ADOPTED TO MINIMIZE ENVIRONMENTAL HARM?

All practicable measures to minimize environmental harm have been incorporated and are detailed in the Executive Summary as Environmental Commitments. These include:

- A minimum design speed of 45 miles per hour, where appropriate, is necessary to be maintained in the construction area in order to minimize undue traffic backups and delays.
- Residential and business relocations will be conducted in accordance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act of*



1970, as amended. Relocation resources will be available to all relocates without discrimination. A conceptual relocation study was completed (refer to Appendix F of the Final EIS), but relocations will be evaluated at a more detailed level during final design.

- According to 49 CFR Part 24.205(A)-(F), relocation planning and service will be provided to businesses. These relocation services include the following:
  - Site requirements, current lease terms, and other contractual obligations;
  - Providing outside specialists to assist in planning and move, assistance for the actual move, and the reinstallation of machinery and other personal property;
  - Identification and resolution of personalty/realty issues;
  - An estimate of time required for the business to vacate the site;
  - An estimate of the anticipated difficulty in locating replacement property; and,
  - An identification of any advance relocation payments required for the move.
- Non-interstate bridges constructed to elevate roadways over the interstate would have 10-foot shoulders, which could accommodate pedestrian and bicyclists safely.
- The Preferred Alternative was shifted to travel along the edge of the Zion community to avoid impacting the Zion Grocery, which serves as an important community store and meeting place. An interchange at S.C. Route 41A would be located west of the community center, and the right-of-way limits for the interchange would have potentially impacted the Zion Grocery. However, design considerations will be incorporated into the final interchange design to ensure this important local landmark is not impacted.
- In the event that previously unknown cultural resources are discovered during construction, the resources will be handled according to 36 CFR §800.11 in coordination with the State Historic Preservation Office and appropriate Tribal Historic Preservation Offices.
- The results of the noise analyses will be given to local governments to aid in future planning in their respective areas.
- Sufficient upland areas that could be utilized for borrow activities are present in close proximity to the Preferred Alternative alignment. Therefore, it appears that impacts to wetlands due to the borrowing activities could be avoided. Wetland



delineations would be performed at the borrow pit sites and potential impacts to federally listed species and cultural resources will be evaluated prior to beginning excavation, in accordance with the SCDOT Engineering Directive (EDM – *Borrow Pit Location and Monitoring*).

- The use of pipes or culverts and the final bridge lengths will be determined after performing detailed hydraulic studies during the final design phase and would be dependent on several factors, such as watershed size, and the presence of FEMA regulated floodplains and floodways.
- Pipe and culvert bottoms will be recessed below the bottom of perennial stream channels to allow movement of aquatic species through the structure.
- Where practicable, 2:1 side slopes were used that reduced the roadway footprint through wetlands and other sensitive areas and thus reduced the impacts.
- Properly sized pipes and culverts, as determined by the final hydraulic study, will be installed under the roadway to maintain the historic hydrologic connections of wetlands and prevent the drainage or excessive flooding of jurisdictional areas.
- Upon completion of the bridges, the temporary means of access will be removed and the area reseeded with native species to deter colonization by invasive species.
- A Section 404 permit from the USACE and a Section 401 Water Quality Certification from SCDHEC will be obtained for unavoidable impacts to wetlands and waters of the United States and mitigation will be completed for these impacts.
- Modifications, such as the installation of coffer dams in stream channels in order to construct footings for bridge pilings, may be required. However, if these modifications were needed they would be temporary and removed upon completion of construction and the natural grade of the wetland restored and reseeded.
- Construction activities will be confined within the permitted limits to prevent the unnecessary disturbance of adjacent wetland areas.
- During construction, potential temporary impacts to wetlands will be minimized by implementing sediment and erosion control measures to include seeding of side slopes, silt fences, and sediment basins, as appropriate. Other best management practices would be required of the contractor to ensure compliance with the policies of 23 CFR 650B.



- Measures will be taken to reduce the likelihood of importing invasive species.
- SCDOT will implement a seasonal moratorium pertaining to the shortnose sturgeon, in the Little Pee Dee River, for all in-water work between February 1 and April 30 of each year. Work will not impede more than fifty percent of the channel between January 1 and April 30. No special measures will be employed outside this moratorium except for normal Best Management Practices.
- A Spill Prevention, Control, and Countermeasures Plan will be developed to address potential impacts from construction activities.

#### **HAS A MONITORING OR ENFORCEMENT PROGRAM BEEN ADOPTED?**

The SCDOT and FHWA will ensure that the Environmental Commitments made in the Final EIS or developed subsequent to the Final EIS in the final design, related to human or natural environmental issues, are carried out.

#### **WHAT COMMENTS WERE RECEIVED ON THE FINAL EIS?**

Two comment letters were received on the Final EIS. A letter was received on January 3, 2008 from USEPA. A second letter was received on January 7, 2008 from the Southern Environmental Law Center. Specific comments were raised on several topics including general NEPA comments, wetlands mitigation and permitting, noise, and Section 4(f). The substantive comments and responses are shown below.

##### **General Comments from USEPA:**

**Comment:** Final EIS did not include copies of agency letters commenting on the Draft EIS.

**Response:** The Final EIS did include copies of agency comment letters. Refer to section 4.5 beginning on page 4-36.

**Comment:** Funding is not available for I-73 and tolling is uncertain. Therefore, updated NEPA documents and wetland data may be need if there is significant delay or changes to the project.

**Response:** Comment noted.

**Comment:** A mitigation plan will be required for impacts to wetlands. Jurisdictional streams will be mapped during delineations for the preferred alternative. Pipes and box culverts will result in water body modifications that could affect aquatic species movement. USEPA has concerns with any proposed in-lieu fee approach to mitigation.



**Response:** Please note that the amount of wetland impacted would be approximately 313 acres, not the 384 that was mentioned in the USEPA letter. The ACT is actively working on developing a mitigation process that will address the wetland impacts associated with both I-73 South and I-73 North. The last ACT meeting (December 12, 2007) was one of several that specifically dealt with the process that will be developed so that a means to mitigate for wetland impacts can be in place. The current plan is to submit one permit application for all of I-73 in South Carolina. It is the goal of the SCDOT and FHWA, as well as the other ACT members, to resolve the agency concerns regarding wetland mitigation prior to SCDOT submitting the Section 404 permit application to the USACE.

**Comment:** Unavoidable noise impacts should be reasonably mitigated.

**Response:** SCDOT policy, per 23 CRF Part 772.9, defines criteria for determining reasonableness. These criteria were used to determine the reasonableness of mitigating the potential noise impacts resulting from this project.

**Comment:** The Preferred alternative would impact the Vaughn tract which is a Section 4(f) property. Compensatory mitigation for this impact should be made to SCDNR.

**Response:** SCDOT is to provide funding to SCDNR for an agreed upon dollar value to locate and purchase replacement property (refer to Page 3 of the Record of Decision).

#### **Southern Environmental Law Center Comments**

A comment letter was also received from the Southern Environmental Law Center on January 7, 2008. The Final EIS was reviewed and it was determined that all of the issues raised in the Southern Environmental Law Center letter were addressed in the Final EIS itself and no new substantive issues were raised.

The USEPA and the Southern Environmental Law Center comments were given thorough consideration. Further analysis would not yield any more meaningful information in reaching the decision to select Alternative 3. No substantive new issues were raised that would warrant additional NEPA studies at this time. The Final EIS has adequately addressed alternatives and the basis for the decision.

Robert L. Lee, S.C. Division Administrator  
Federal Highway Administration  
February 8, 2008

Thomas J. Barrett, Deputy Secretary  
U.S. Department of Transportation  
February 8, 2008







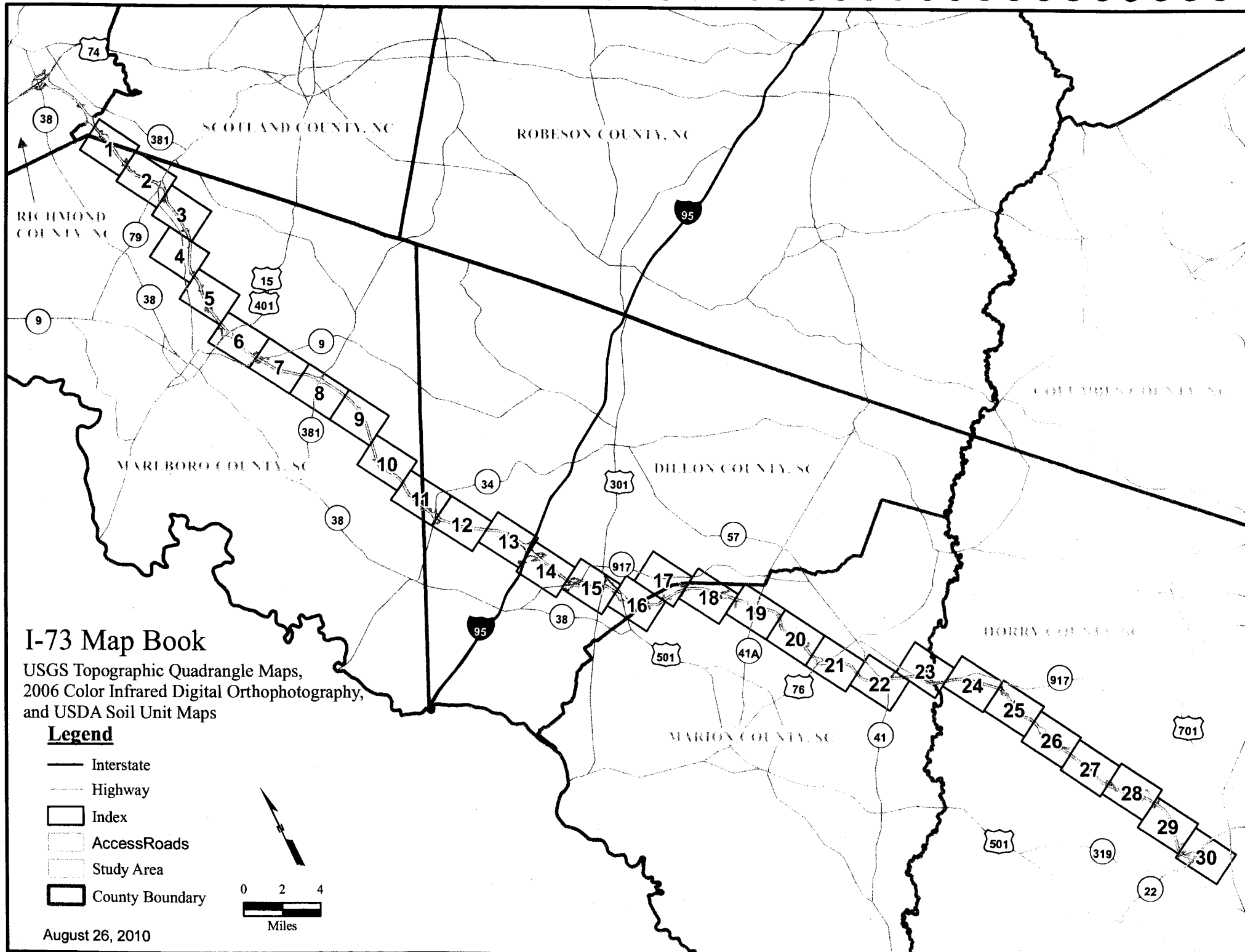
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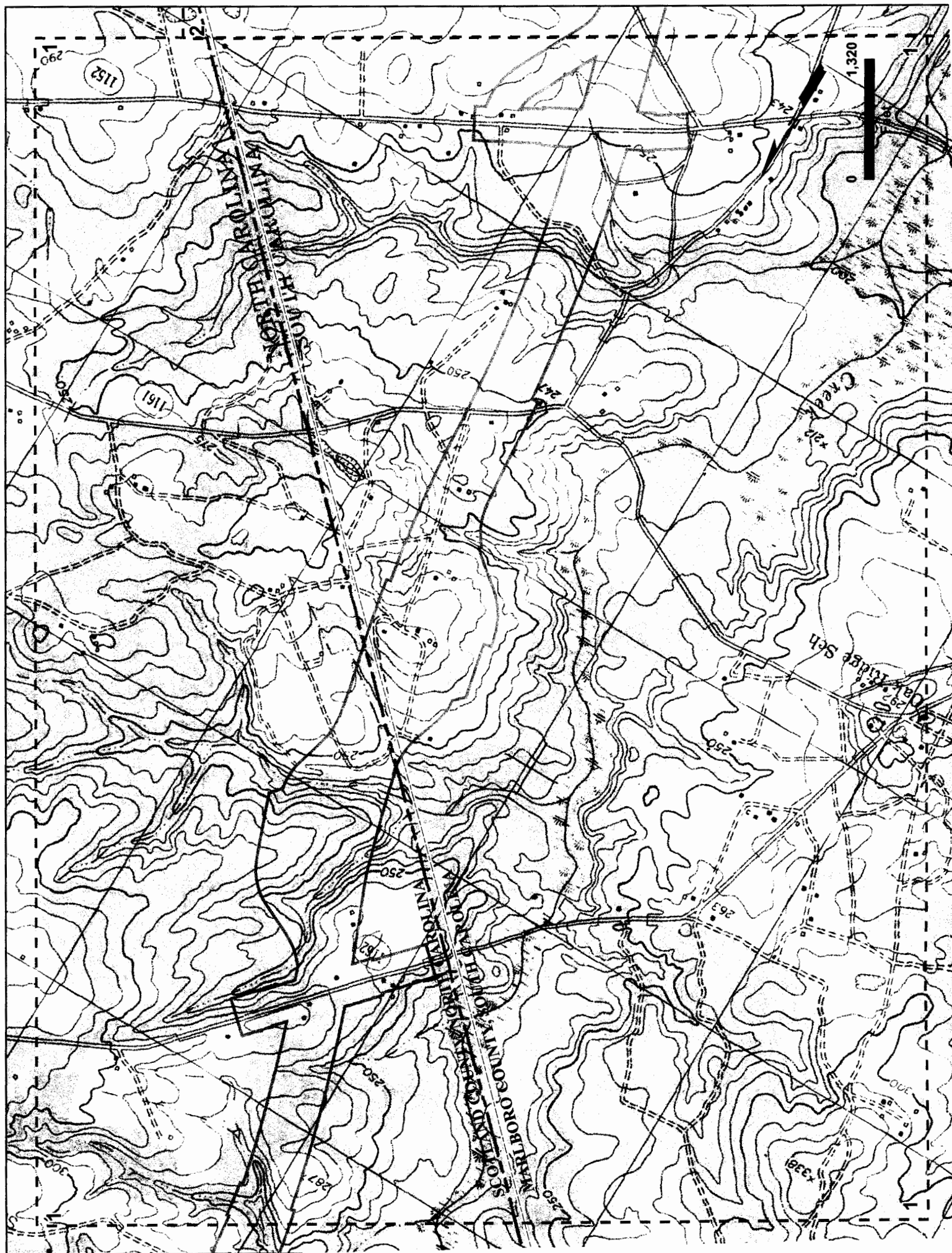
South Carolina

Map Book

(Marlboro, Dillon, Marion,  
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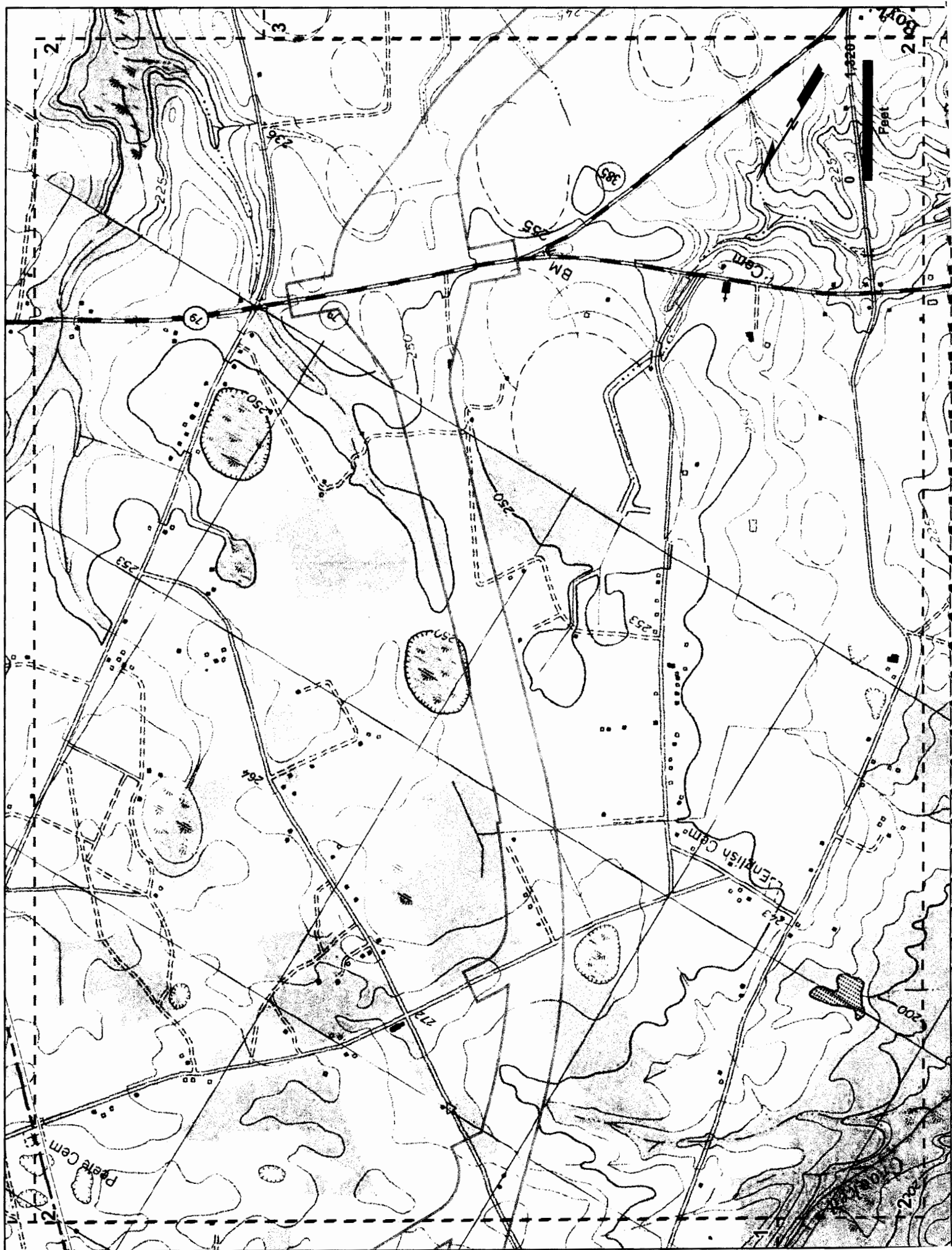






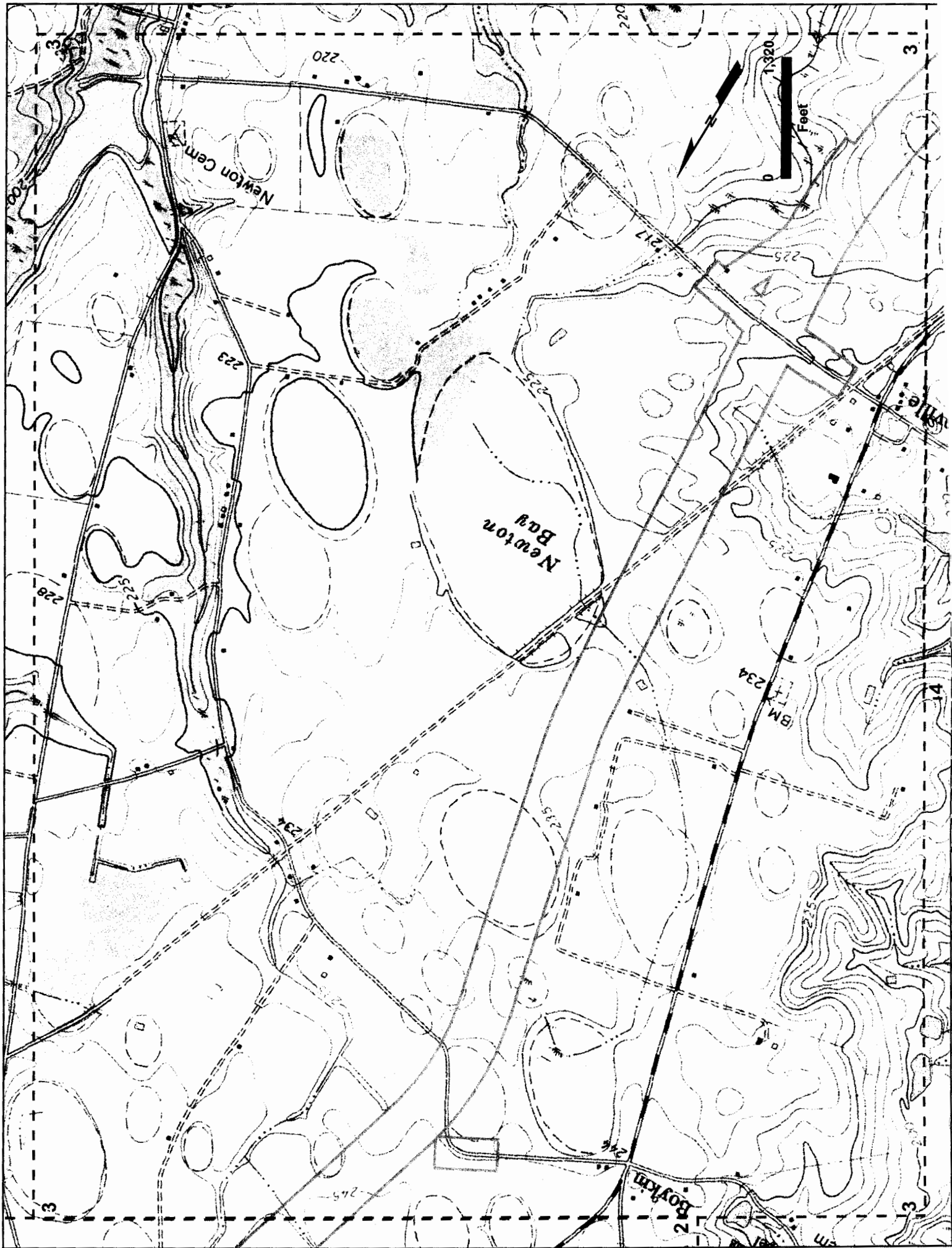
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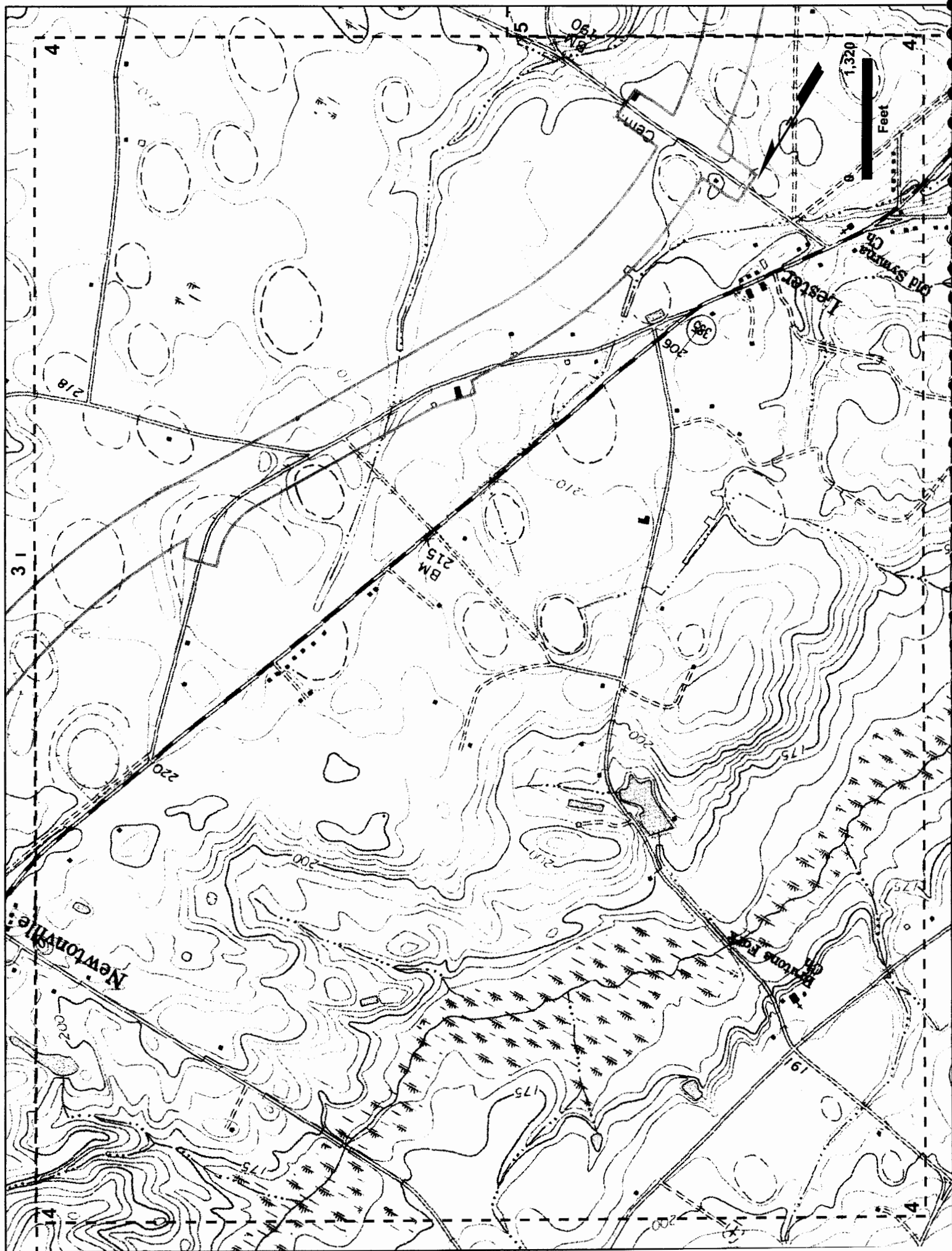




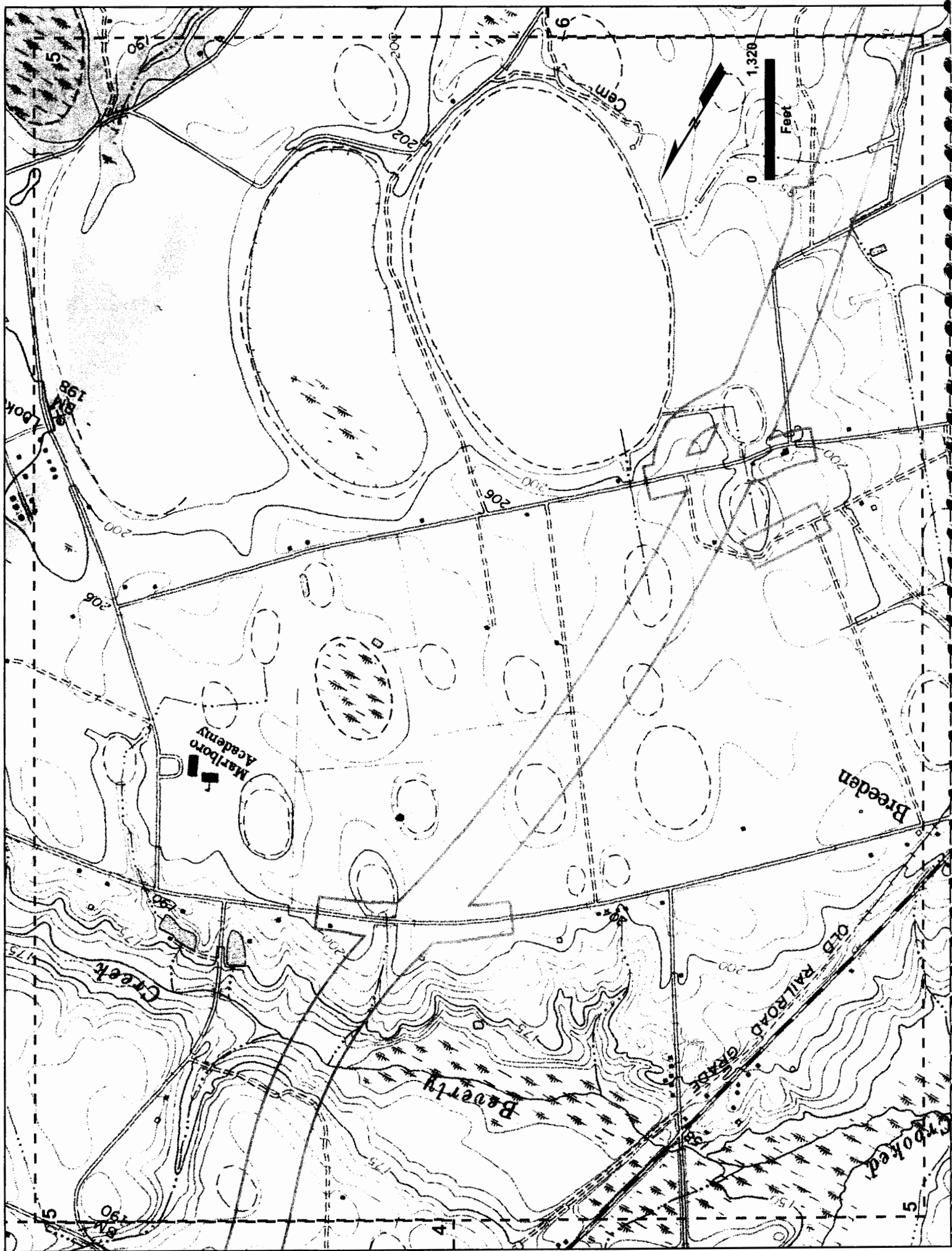






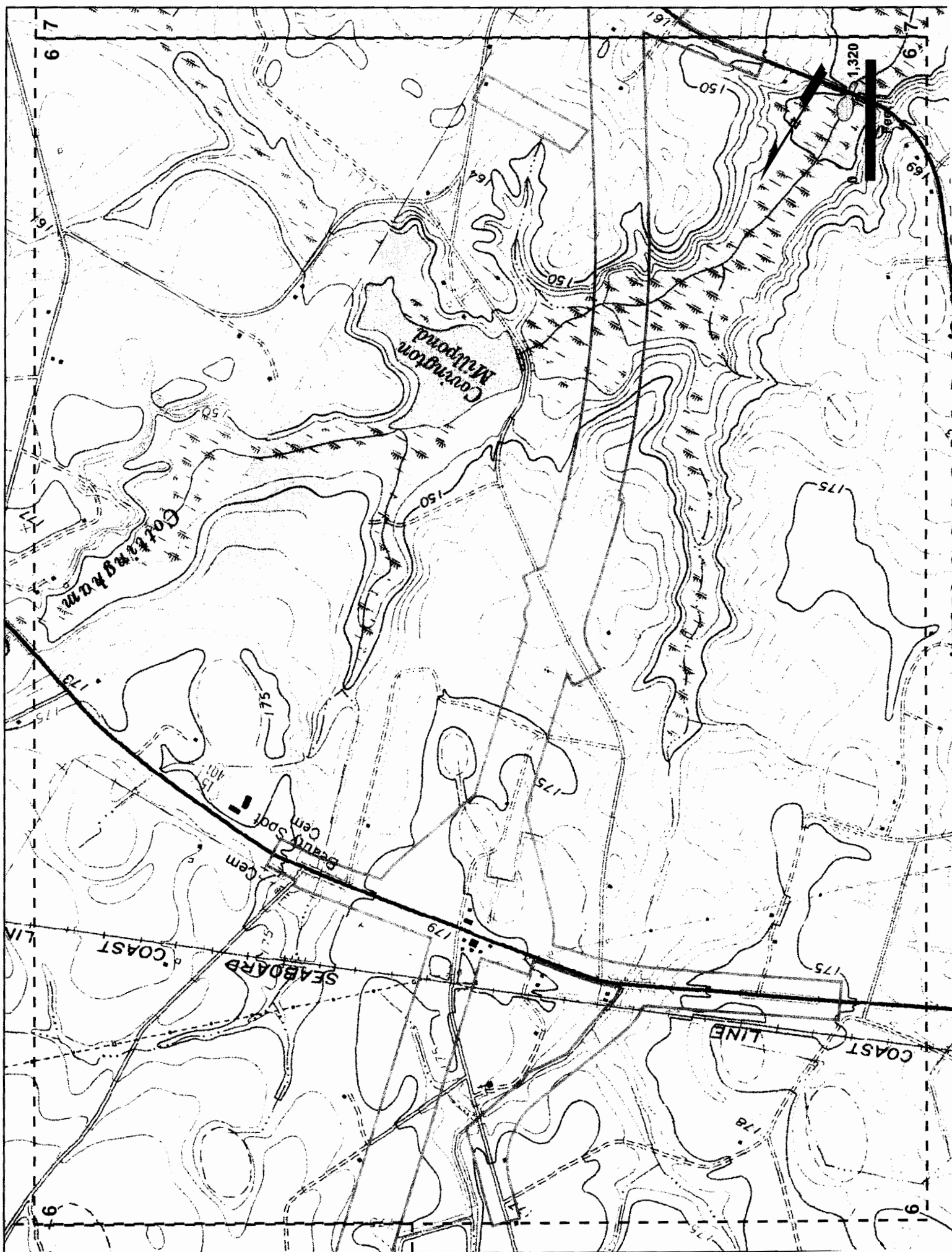














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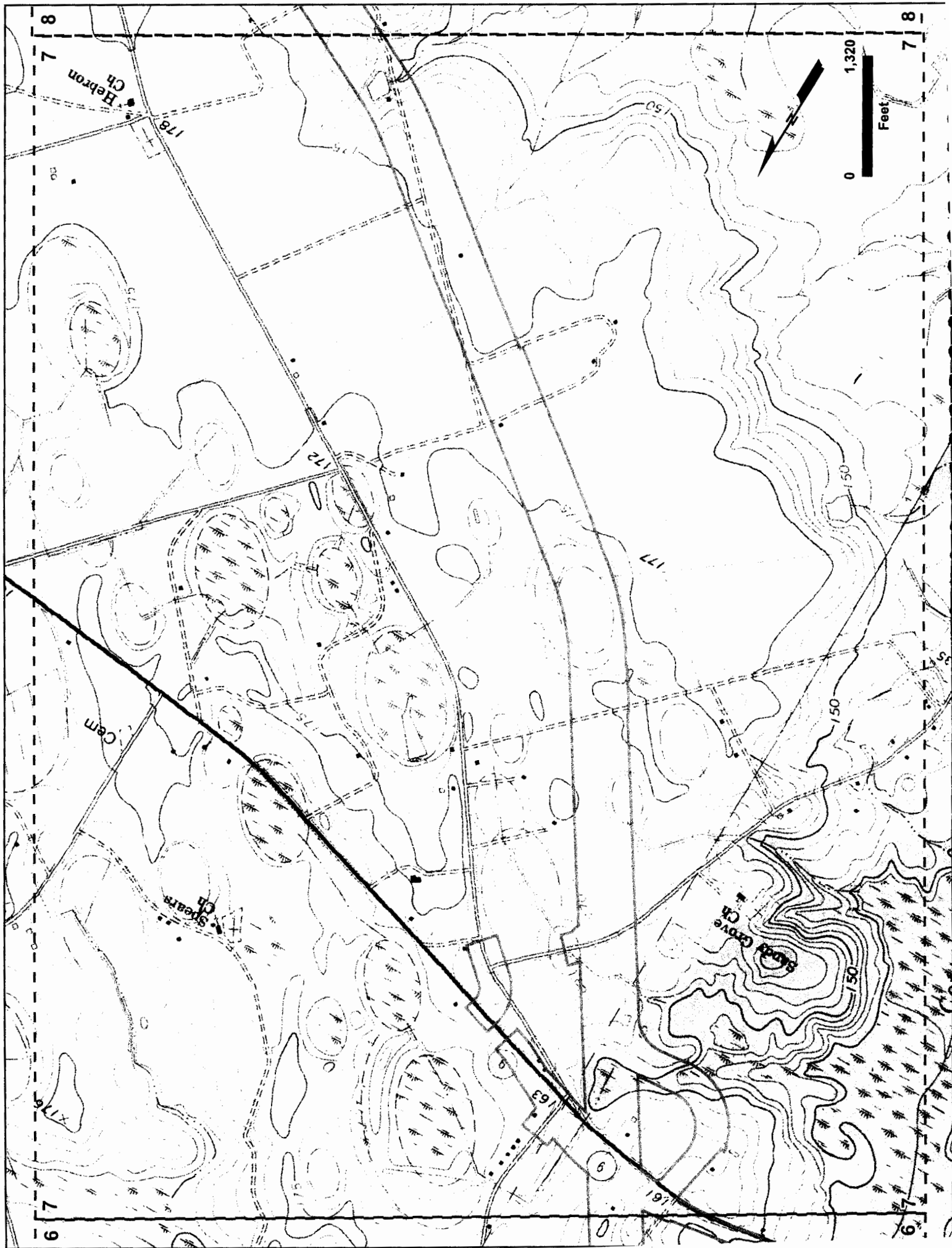
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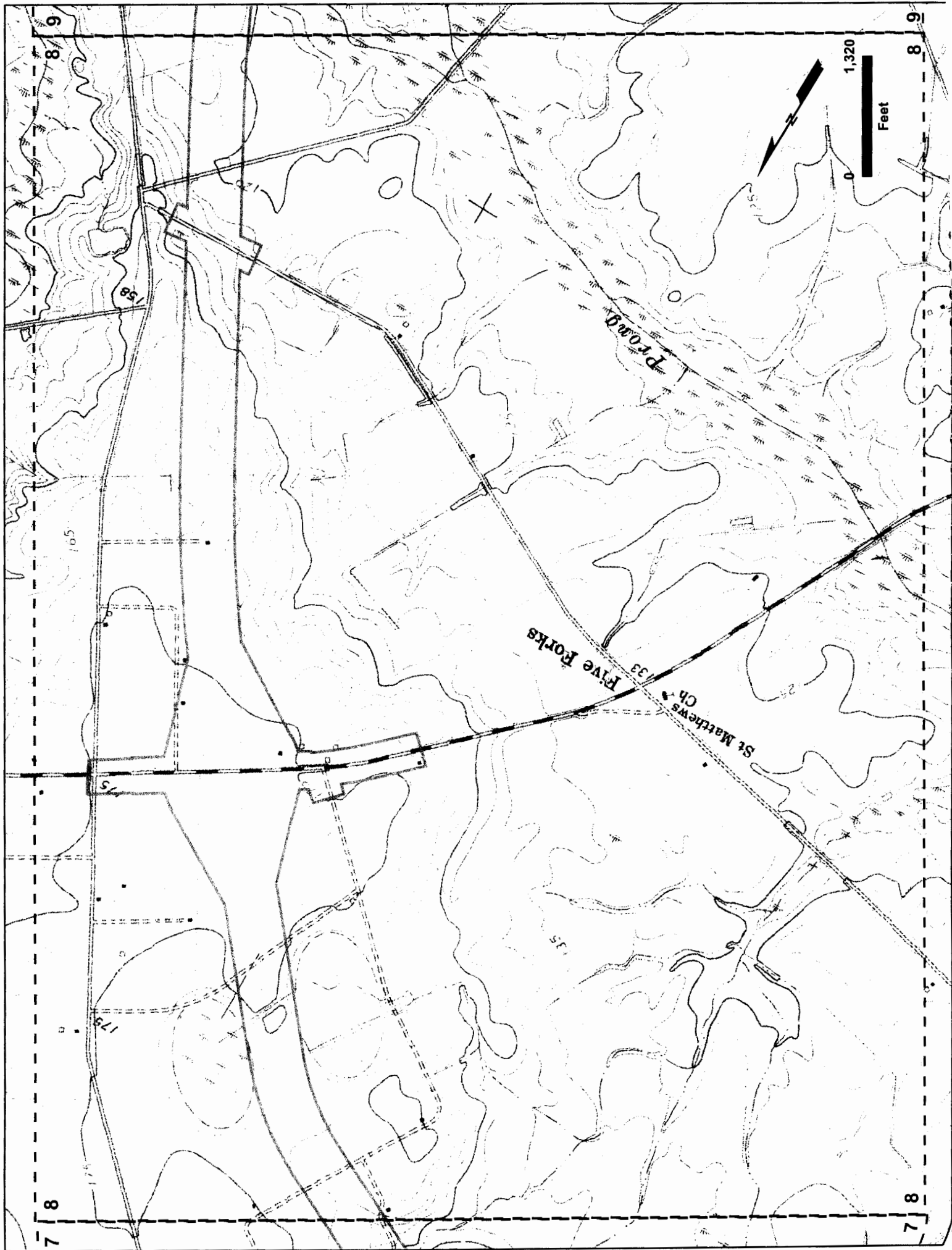
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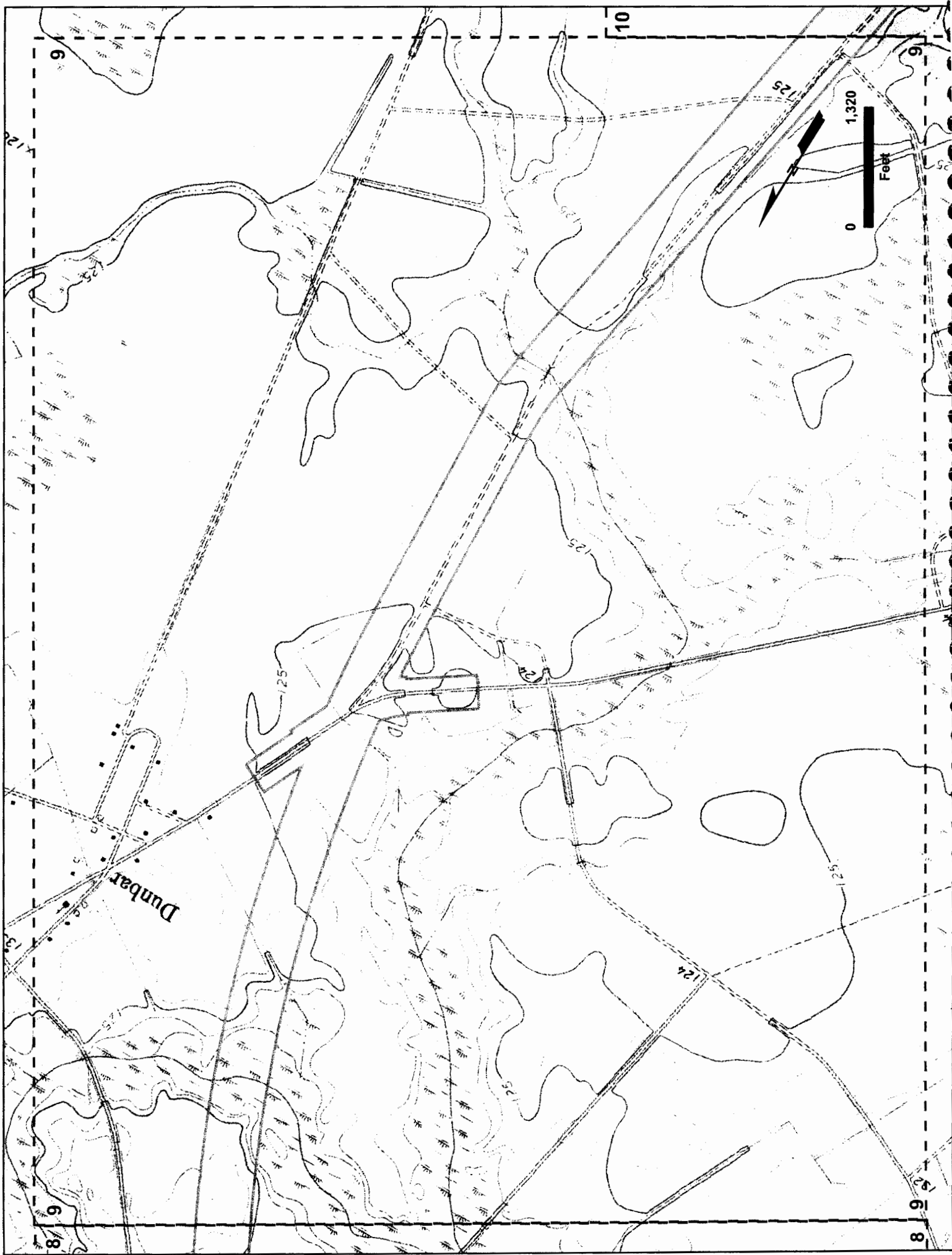


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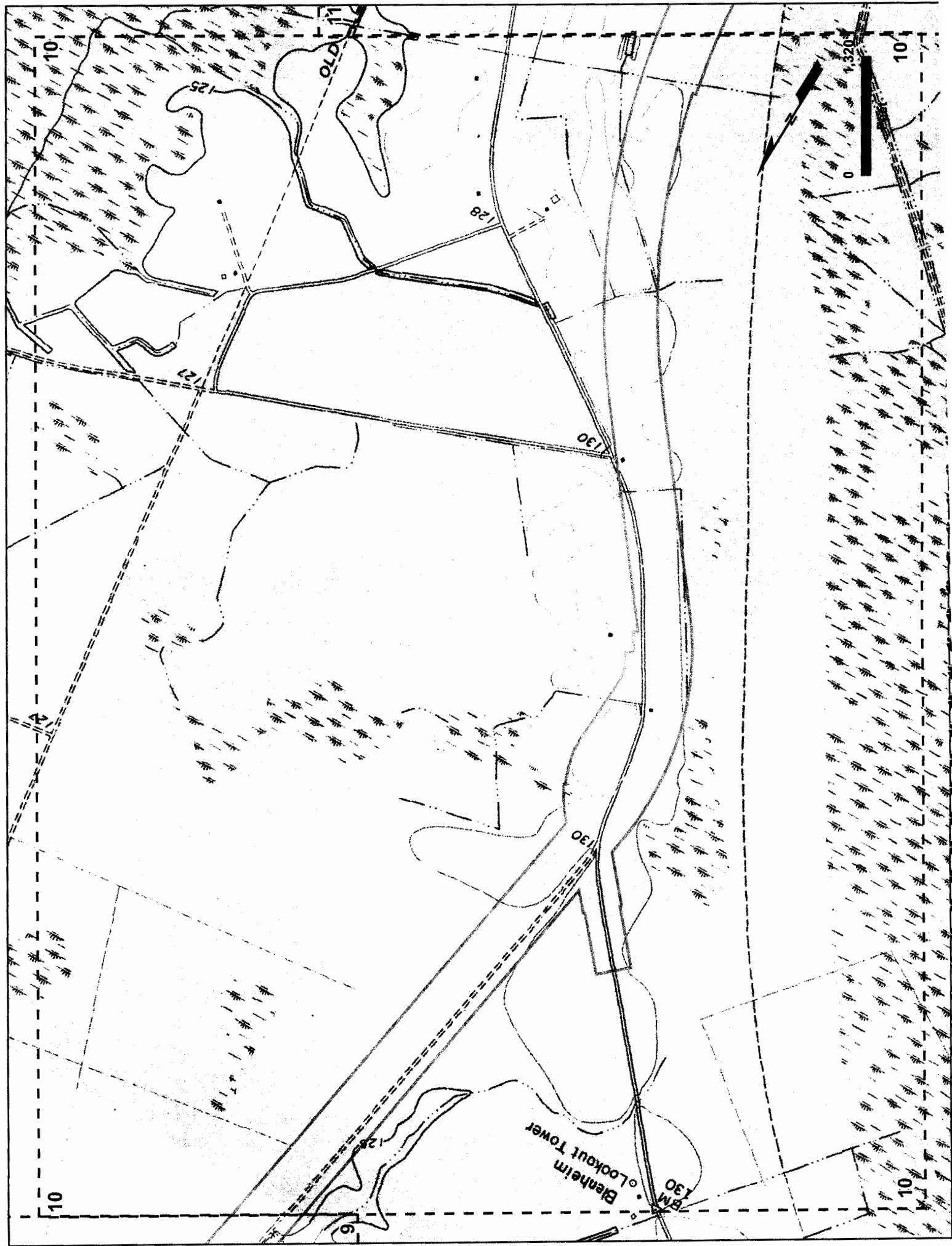
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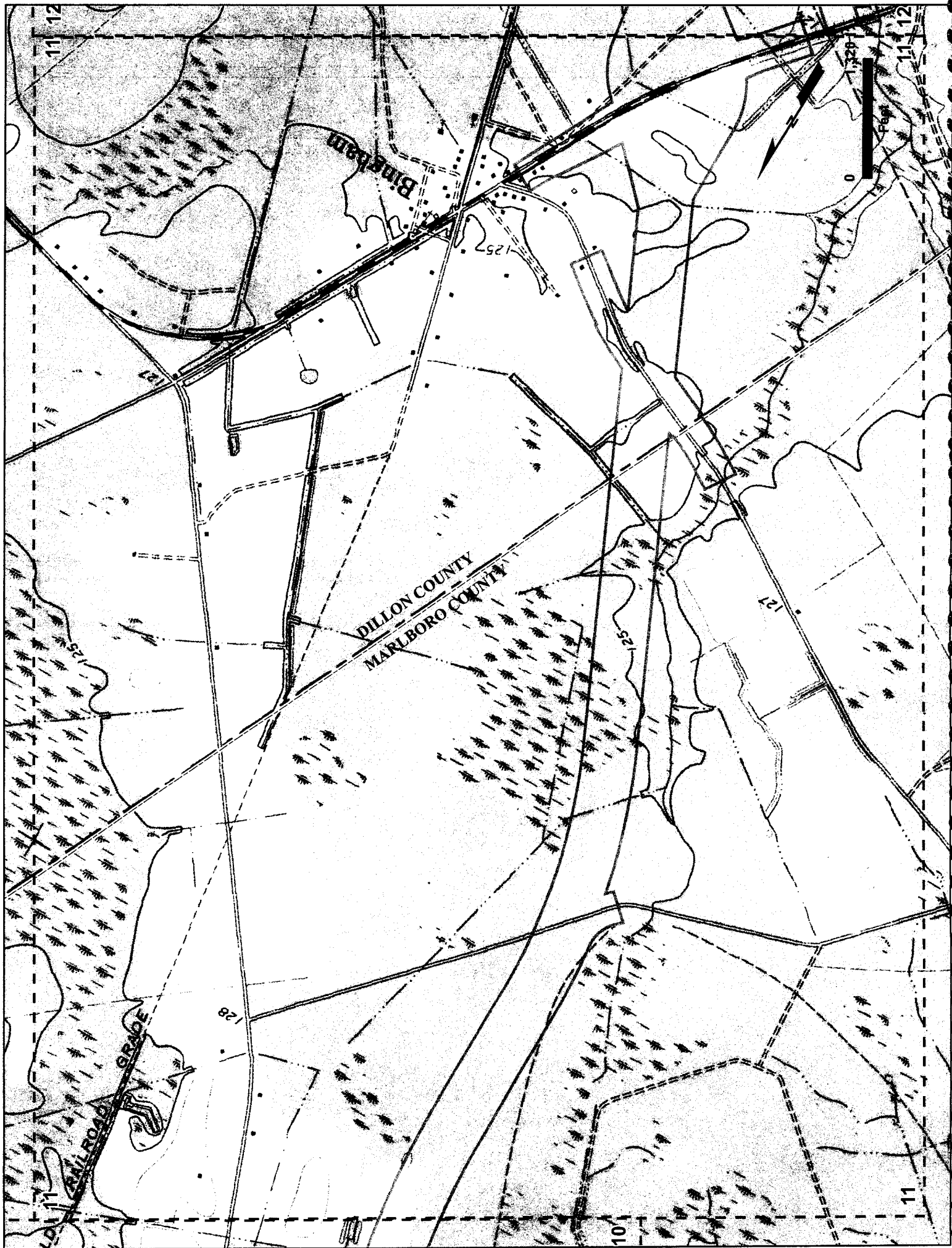
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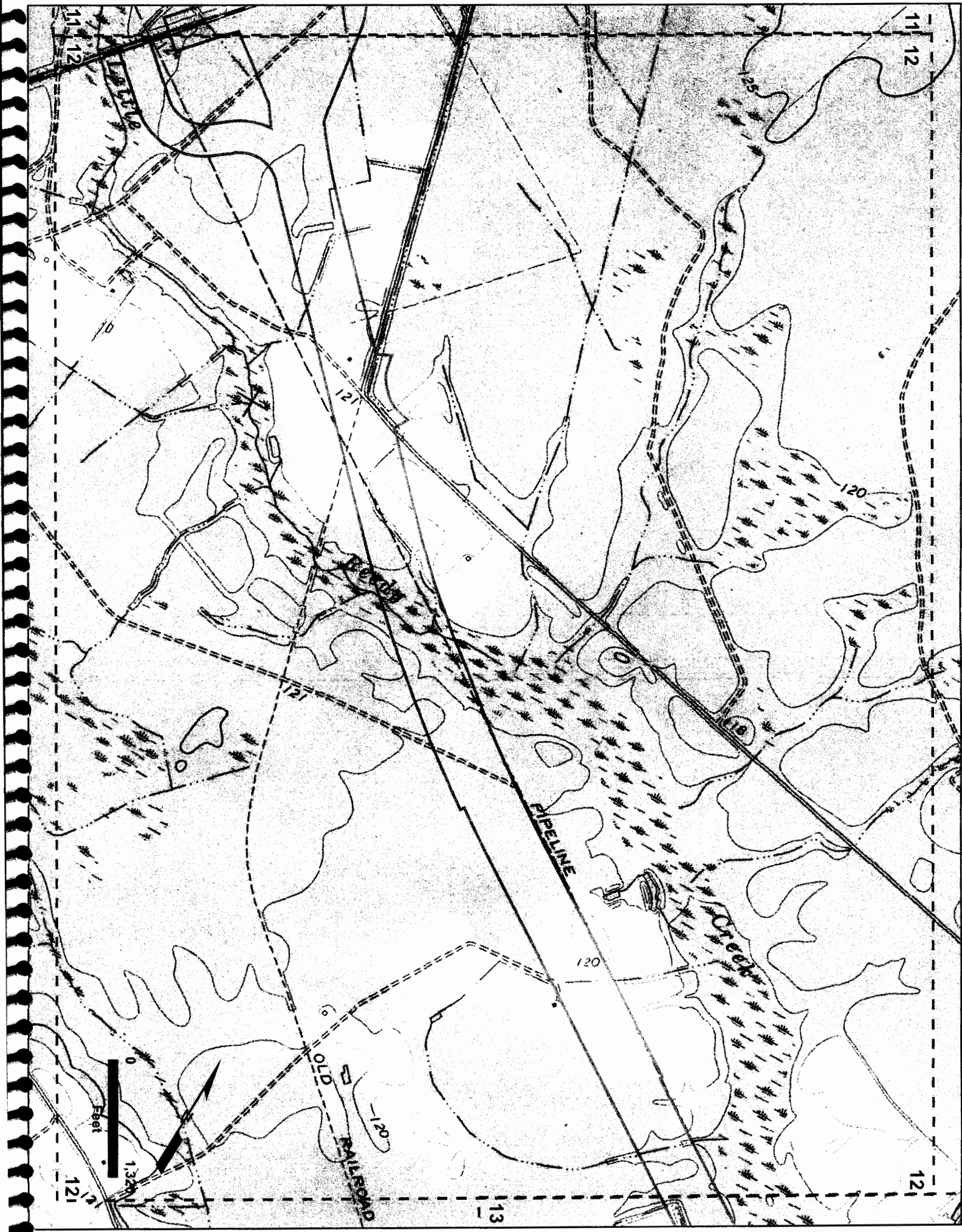
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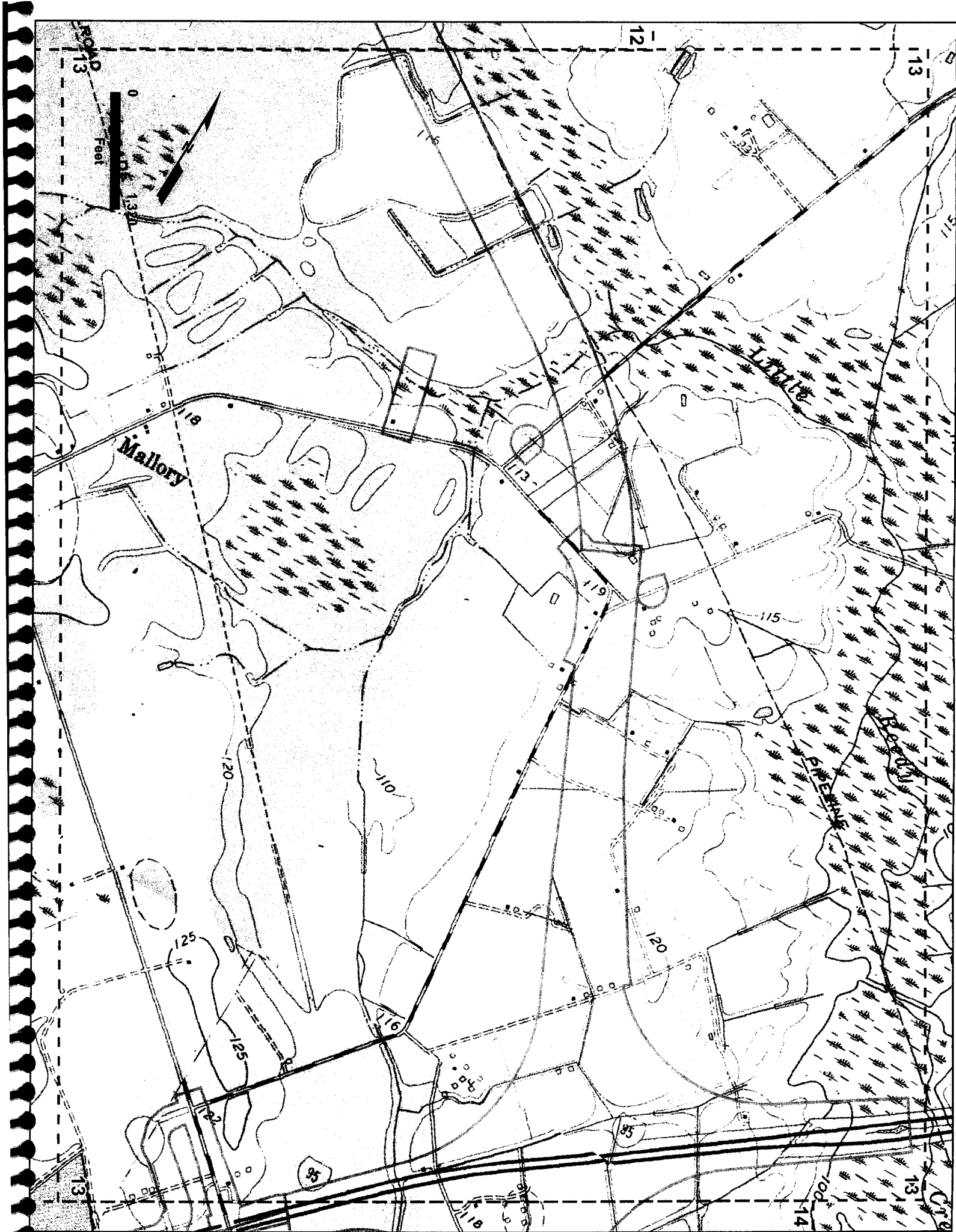
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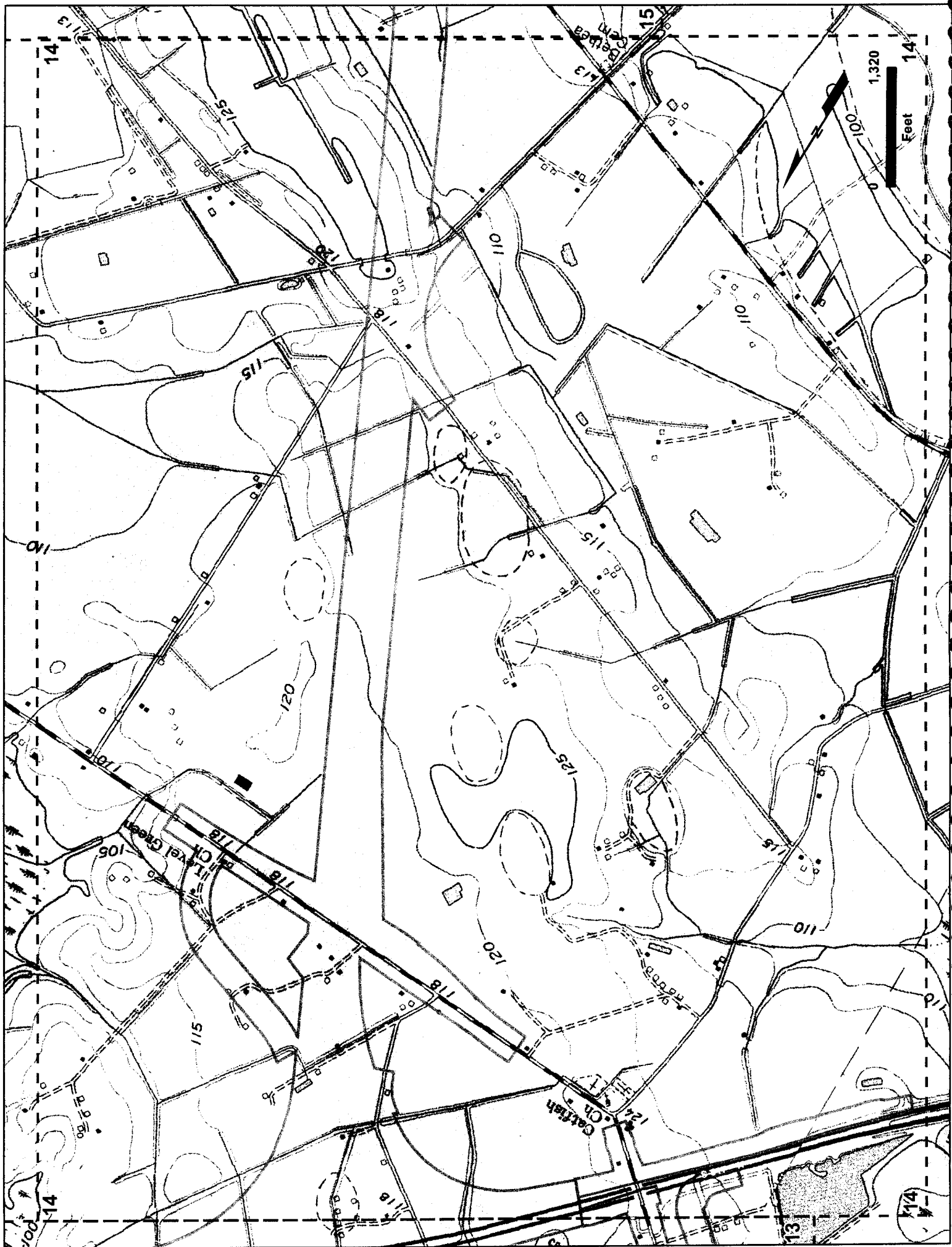
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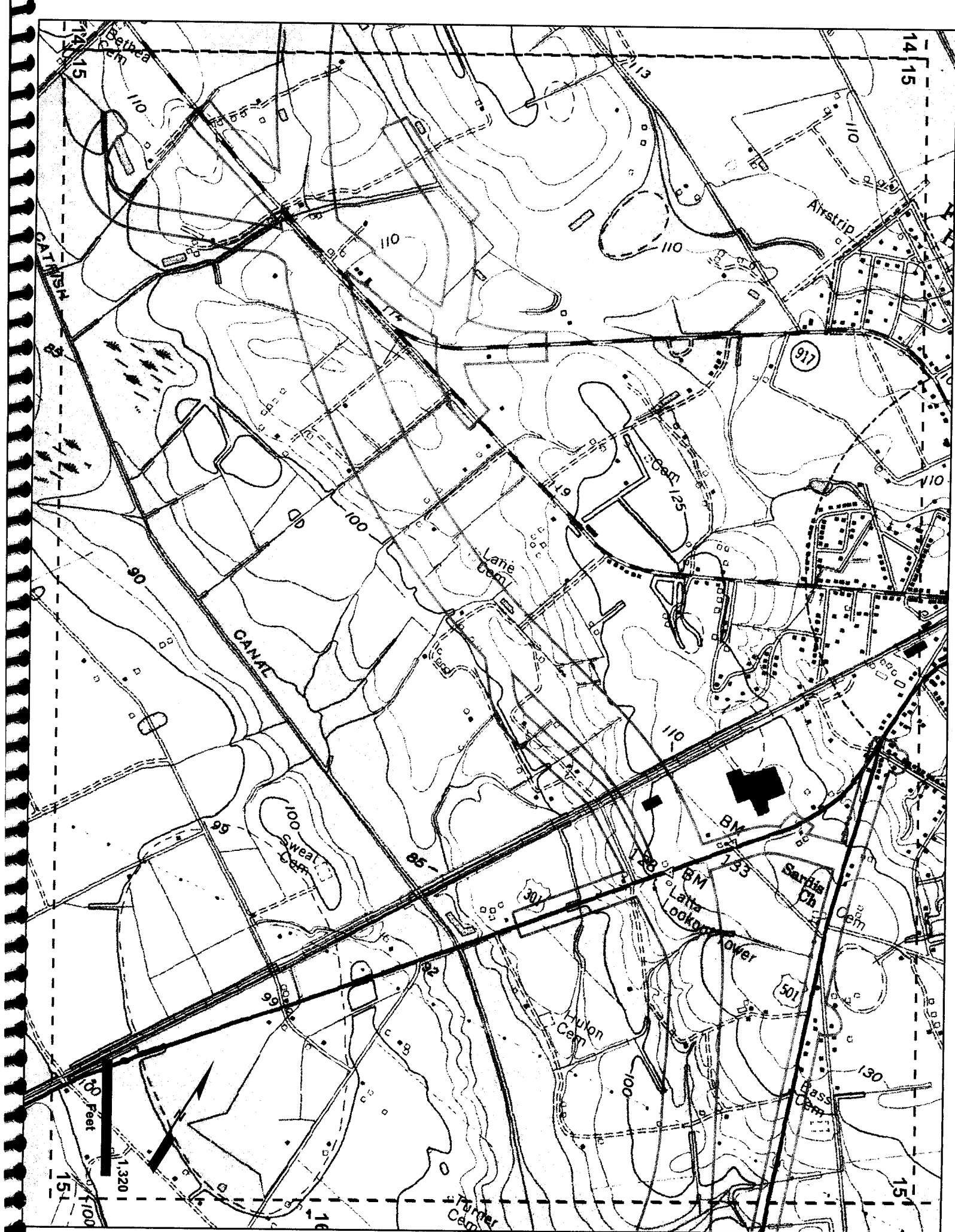






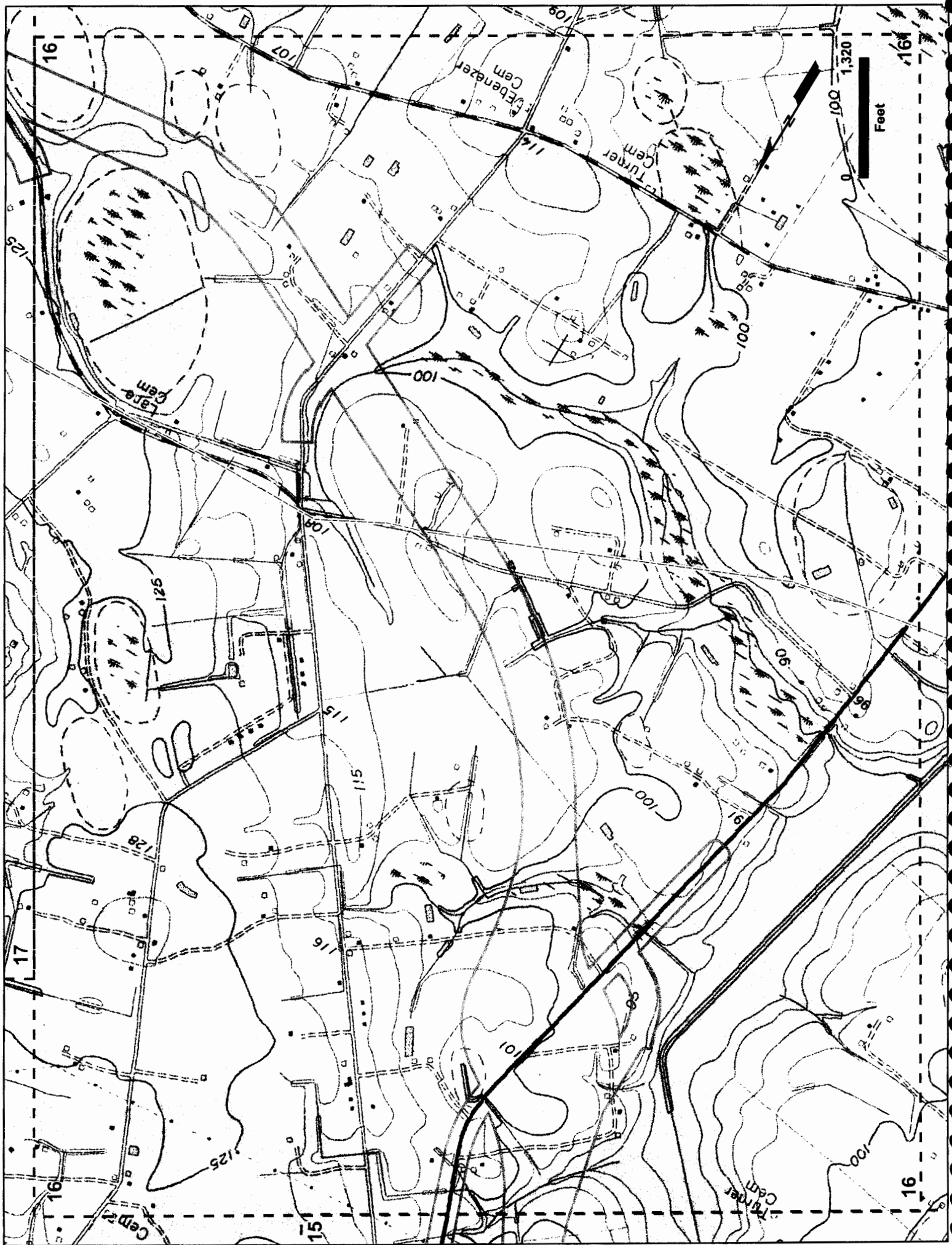














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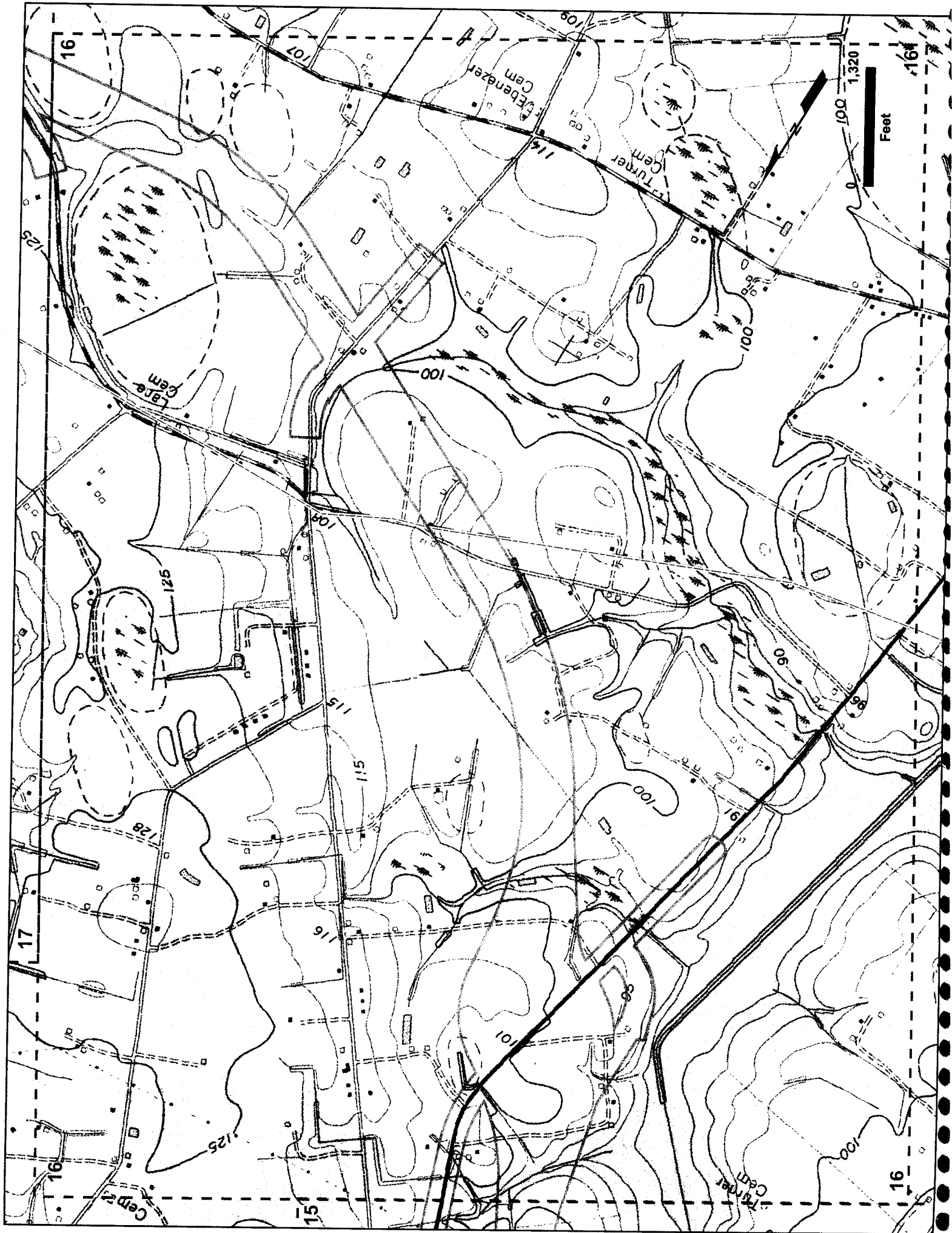
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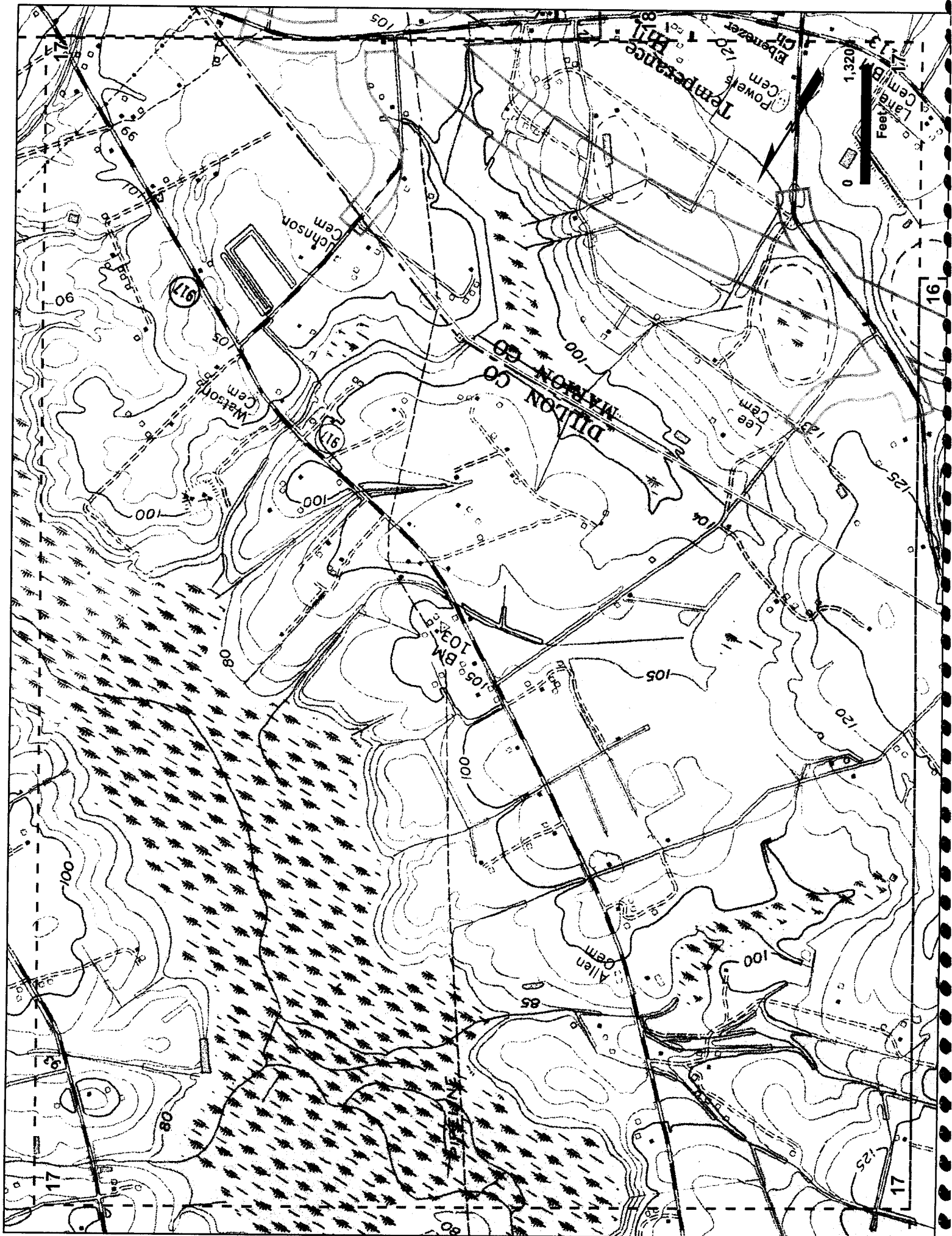
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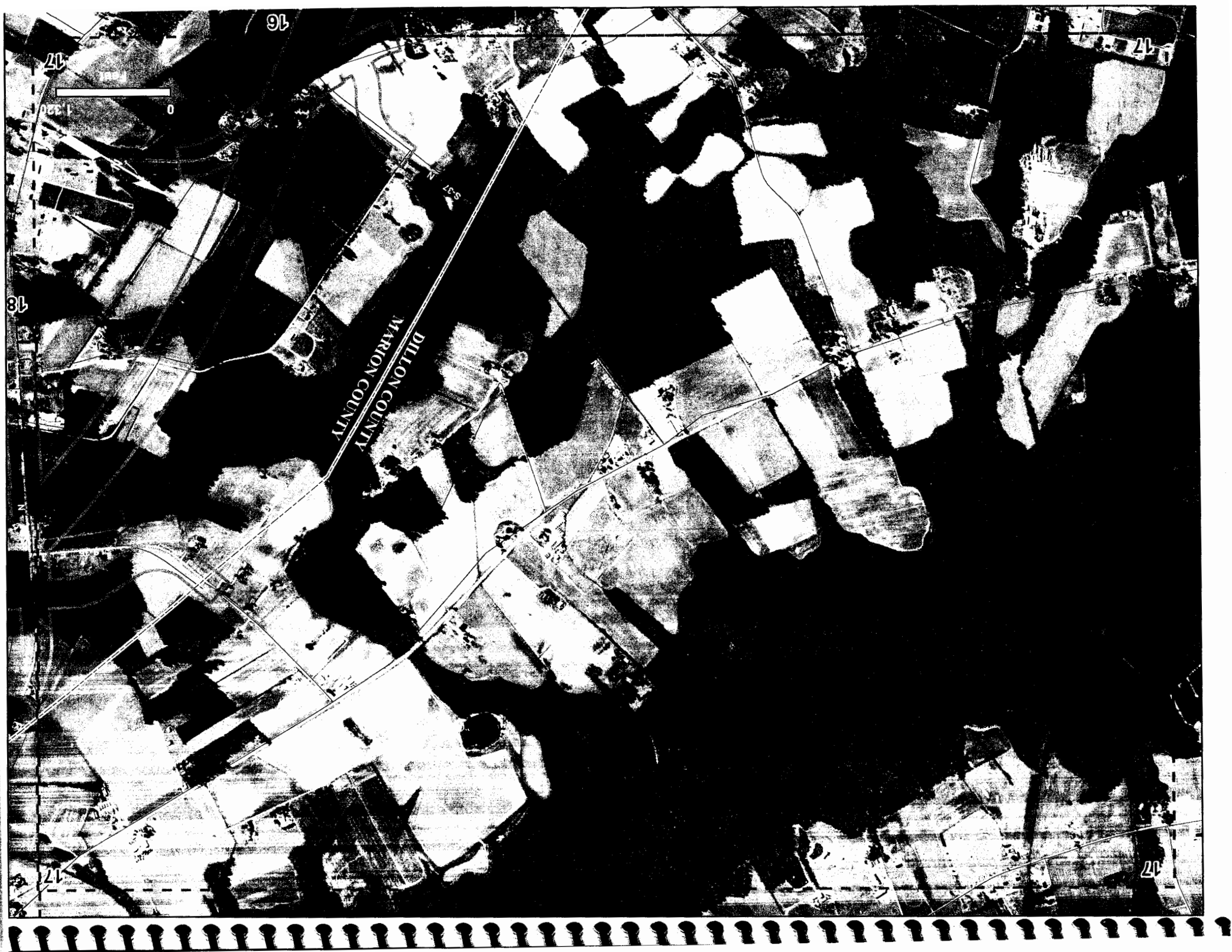
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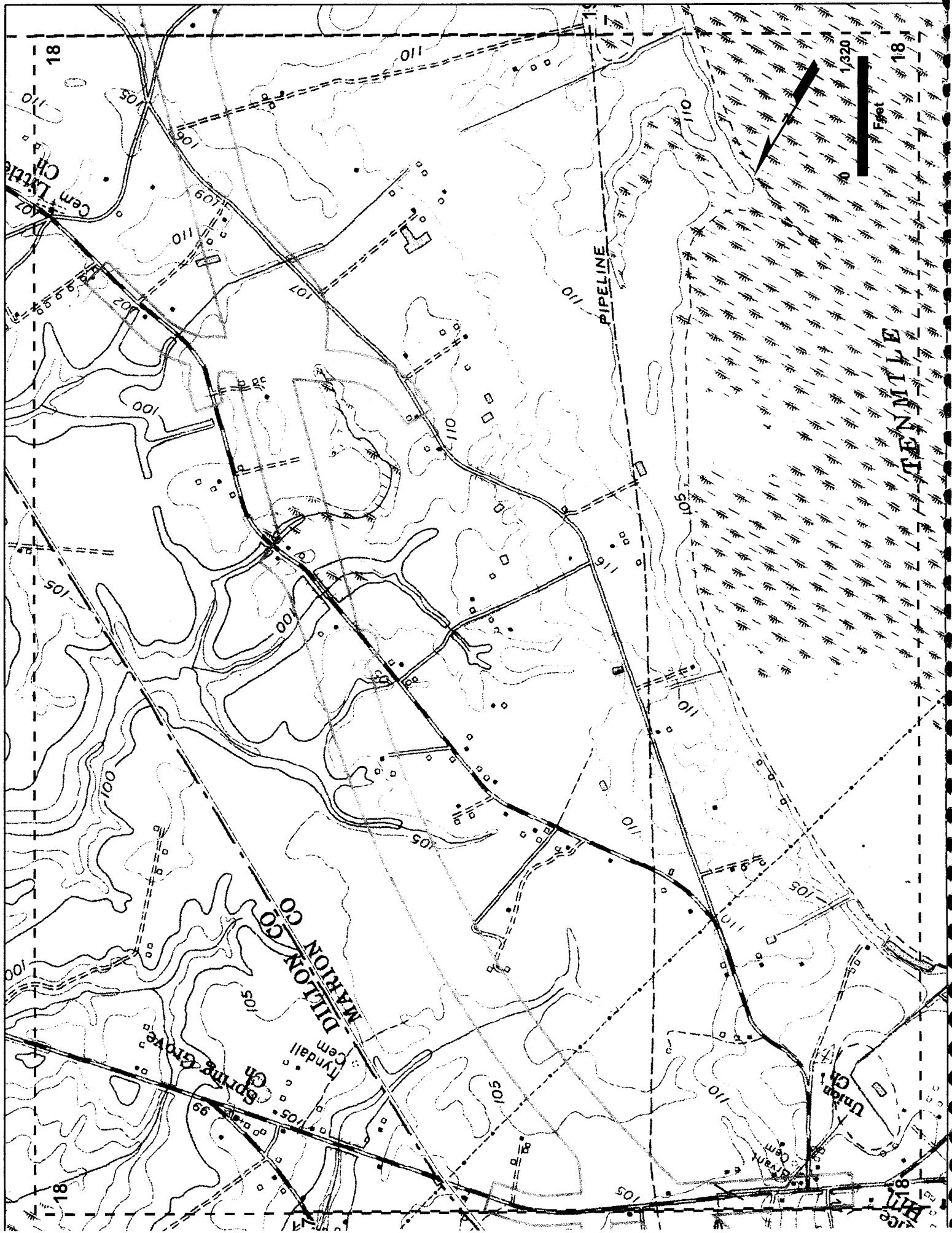














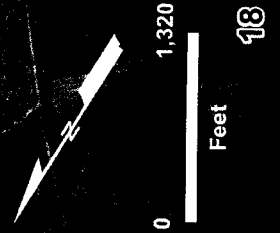


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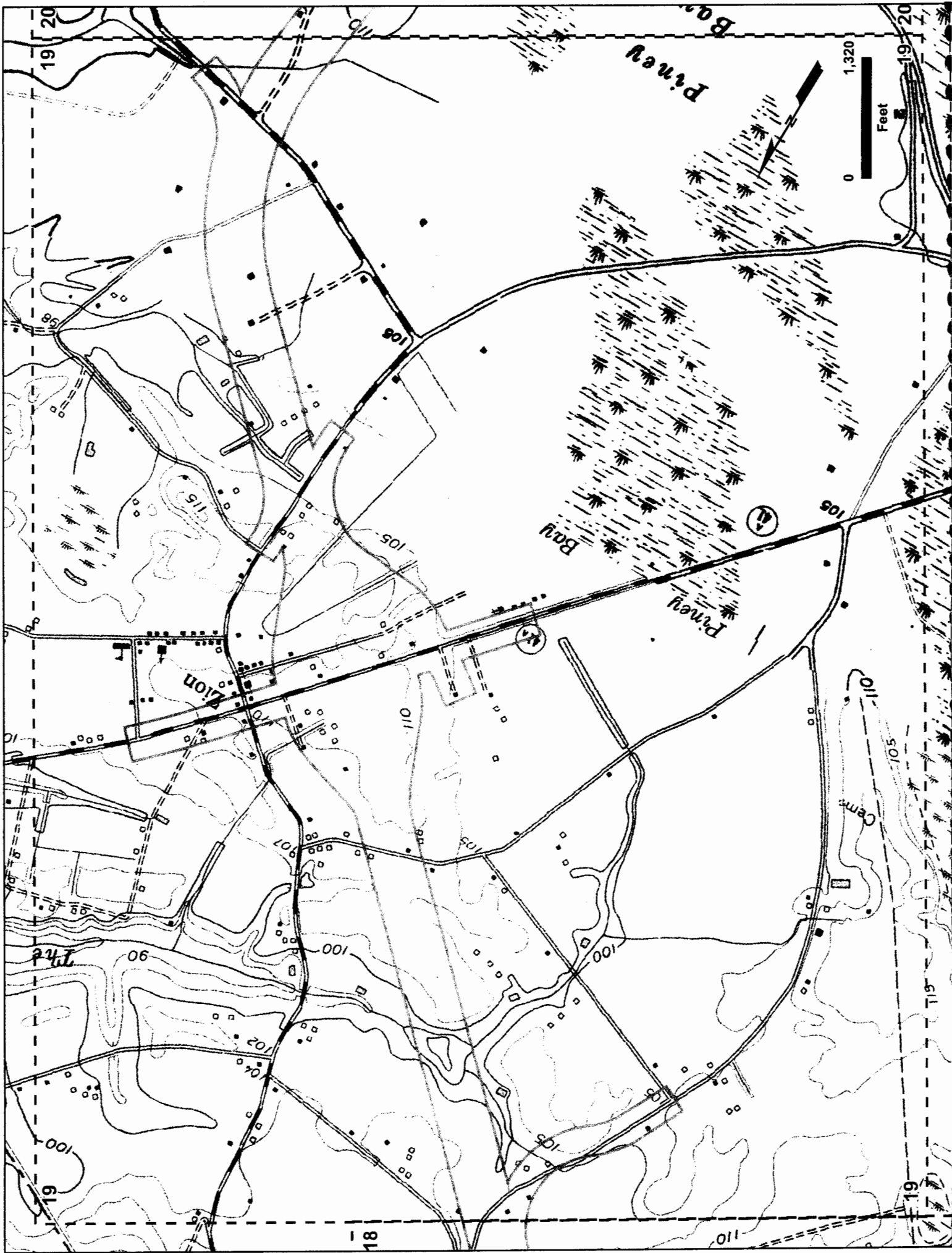
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MARION COUNTY

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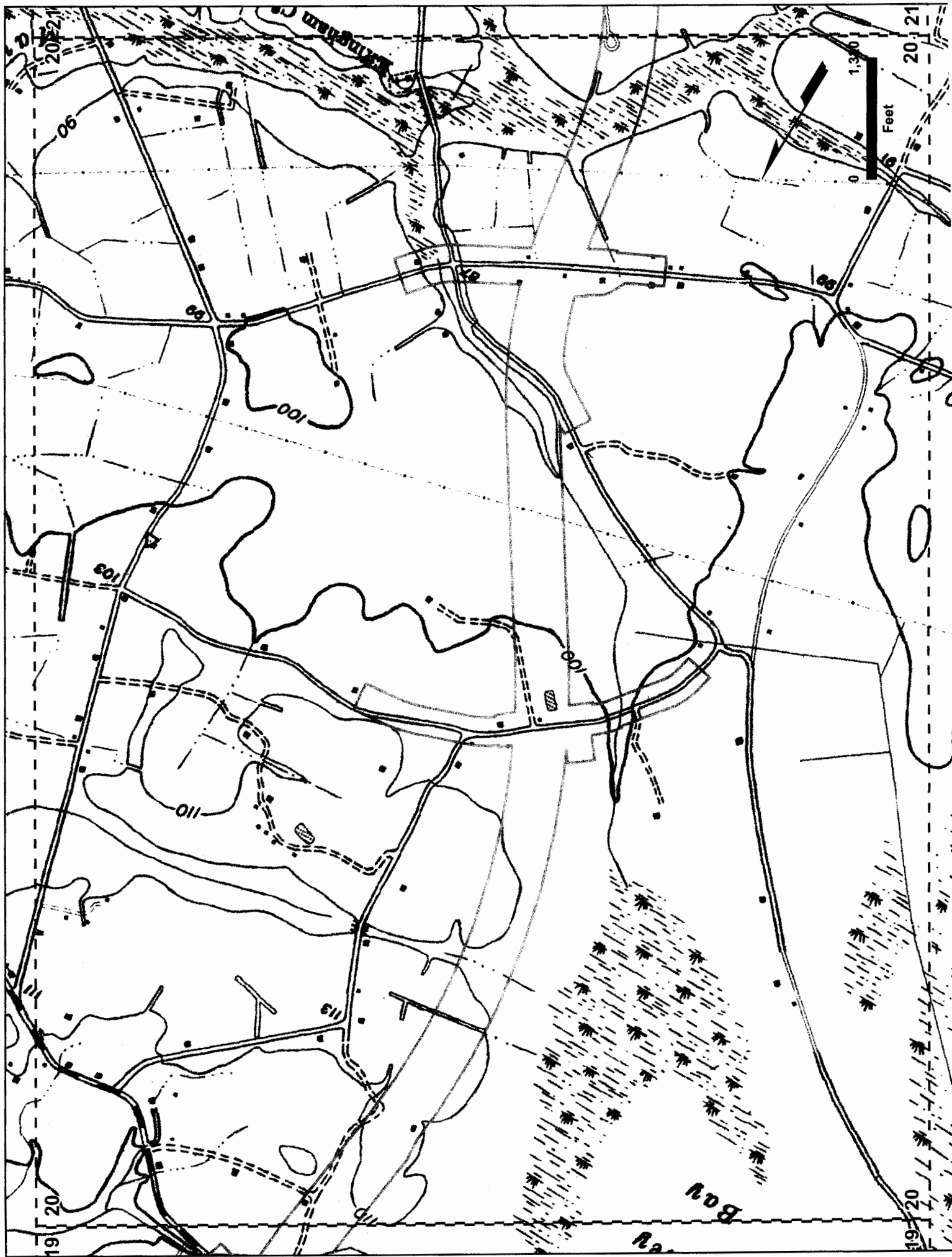
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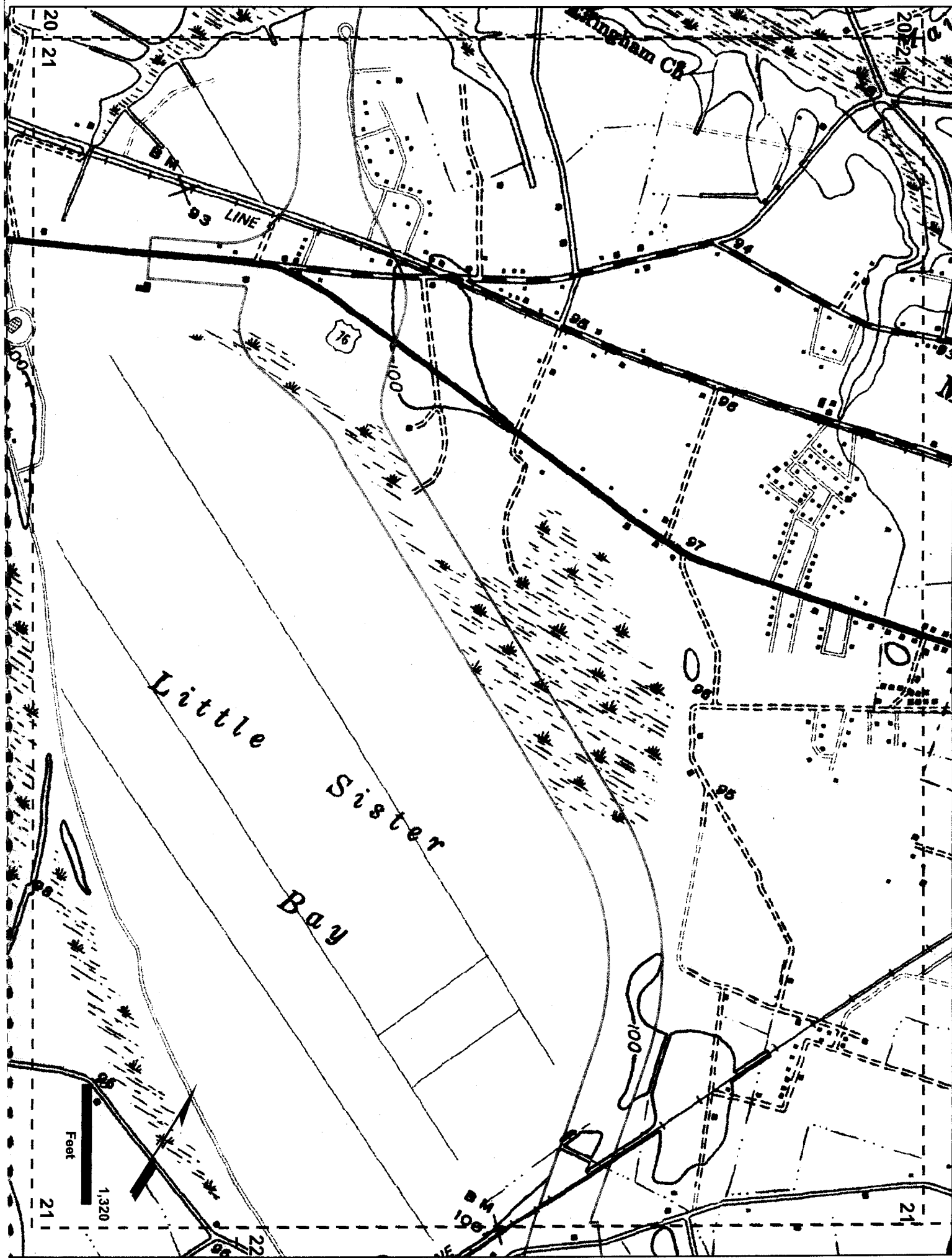
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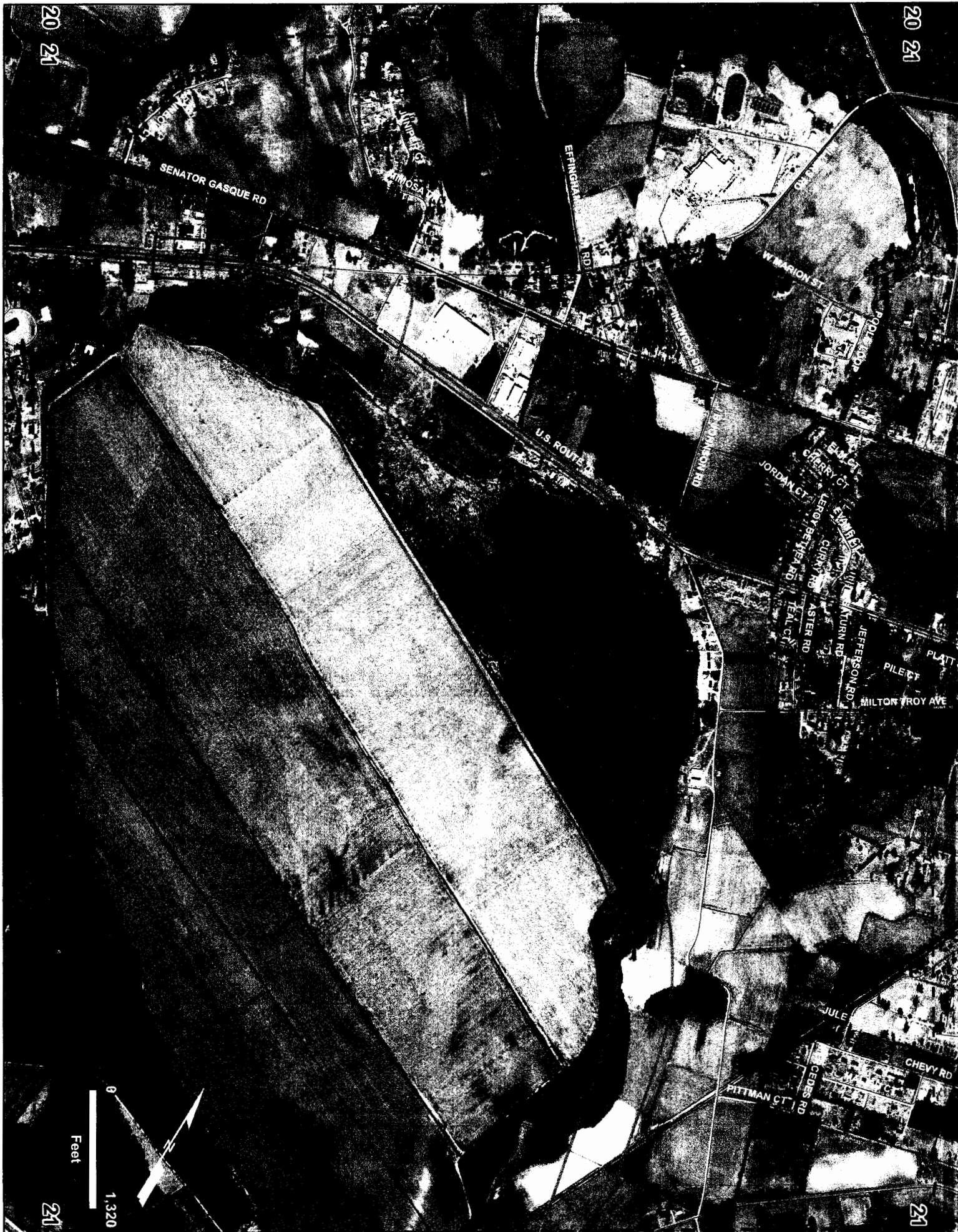
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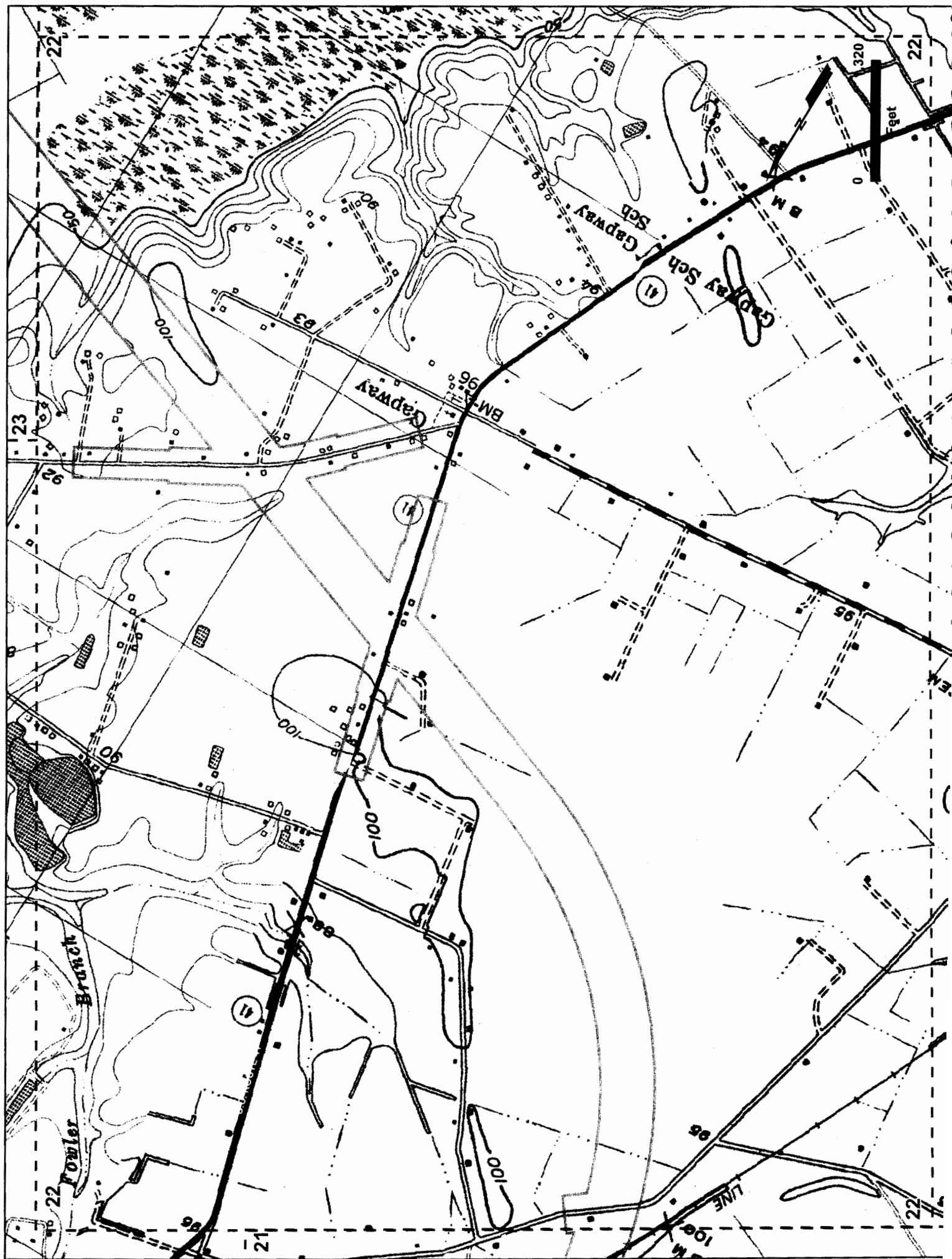


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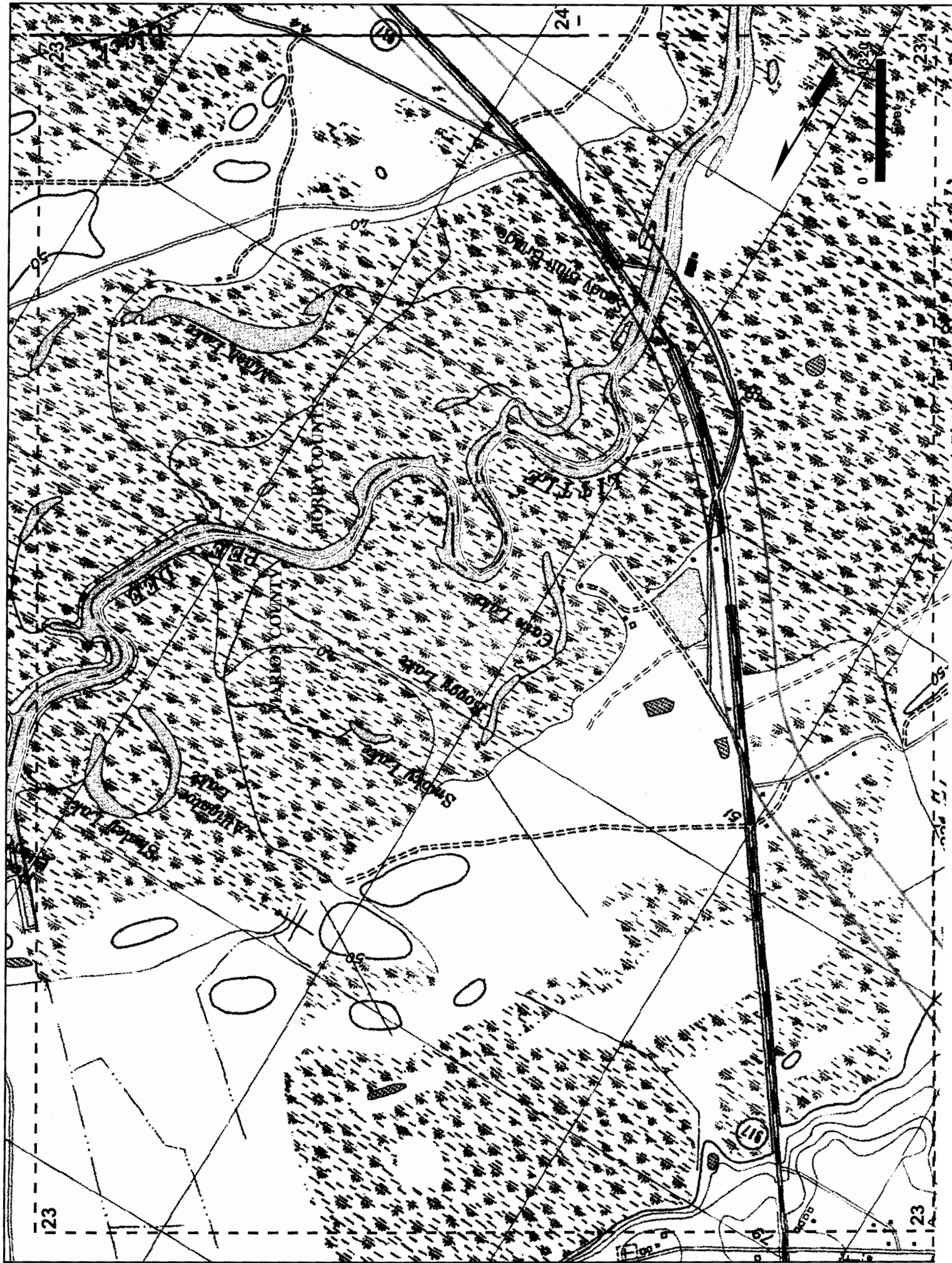
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MARSH LAKE RD

HILL RD  
COTTAGE LANDING RD

HORRY COUNTY

MARION COUNTY

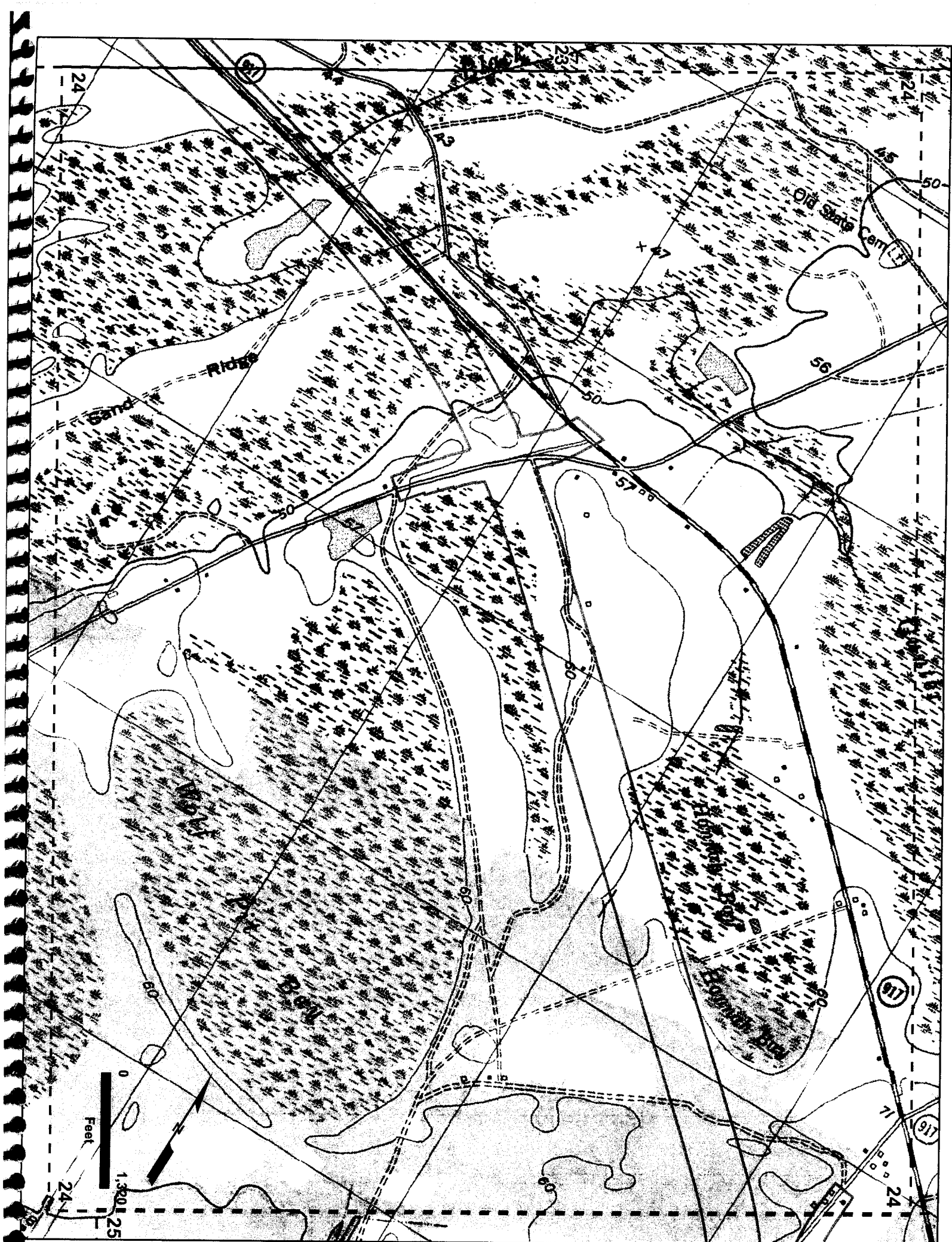
SAINT COLUMBIA CHURCH  
CHOICE CT

S.C. ROUTE 917

LILY CREEK PL

MAZARENO







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DEER RD N

S.C. ROUTE 917

WOLF PIT BAY RD

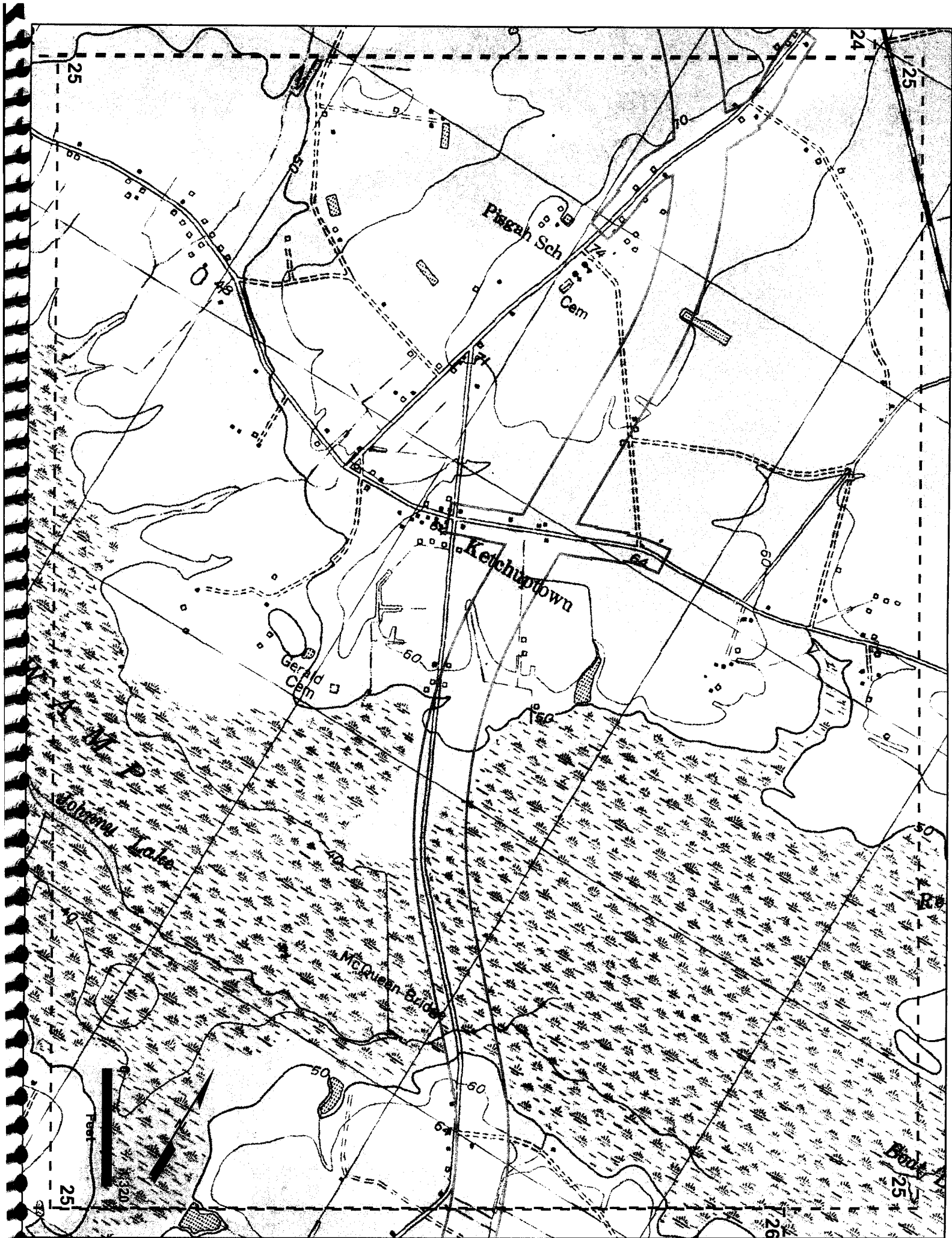
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WICK RD

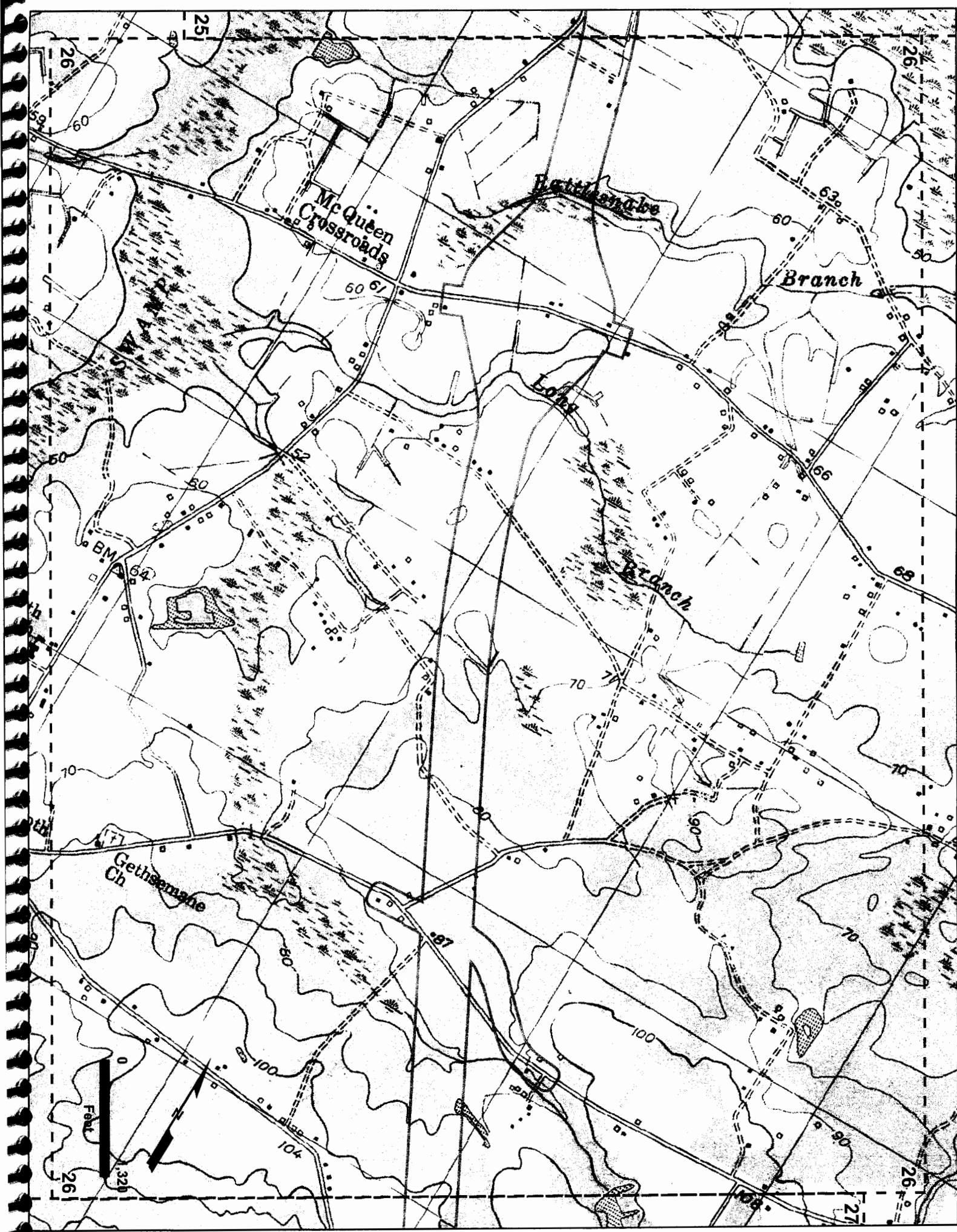
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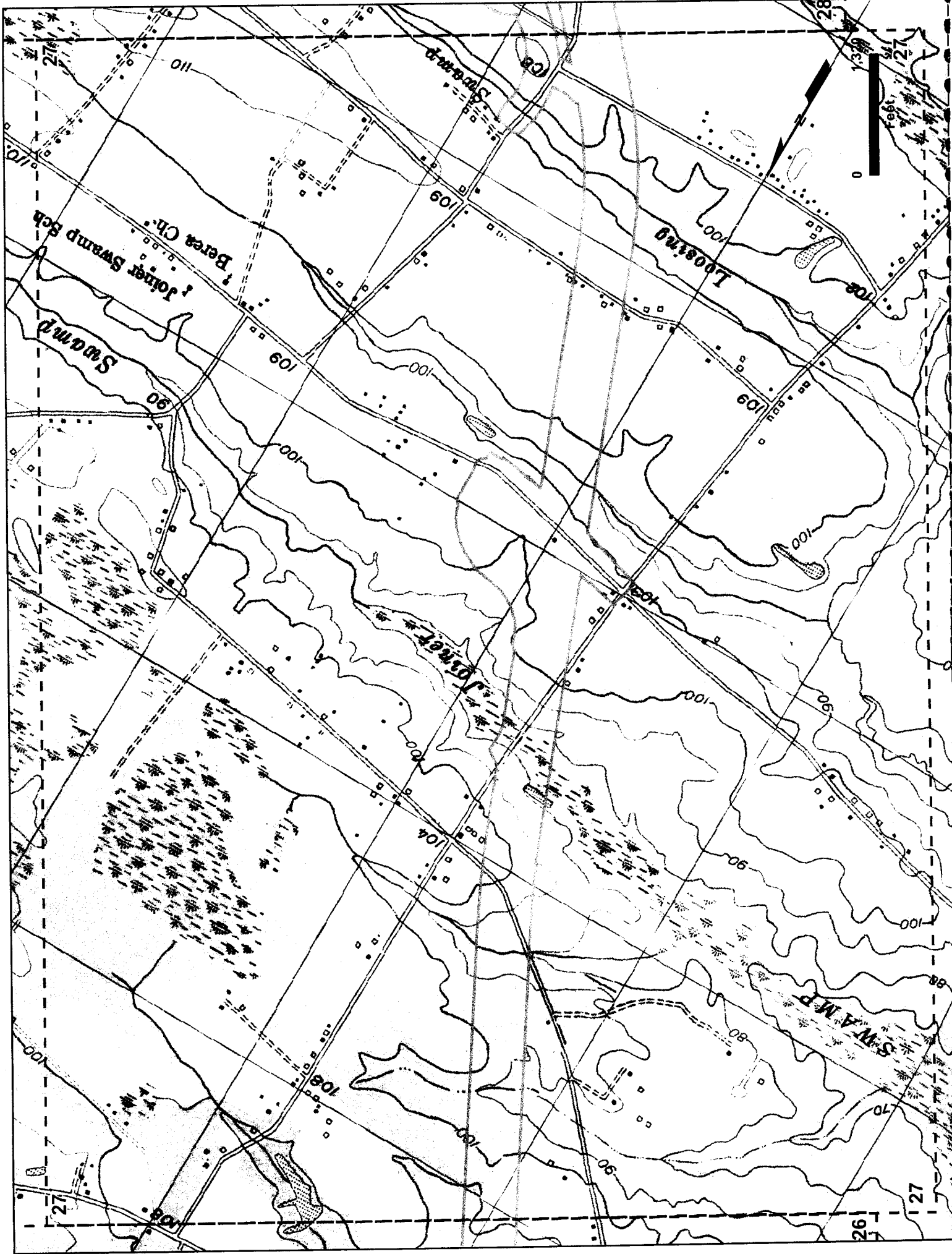
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Feet 320

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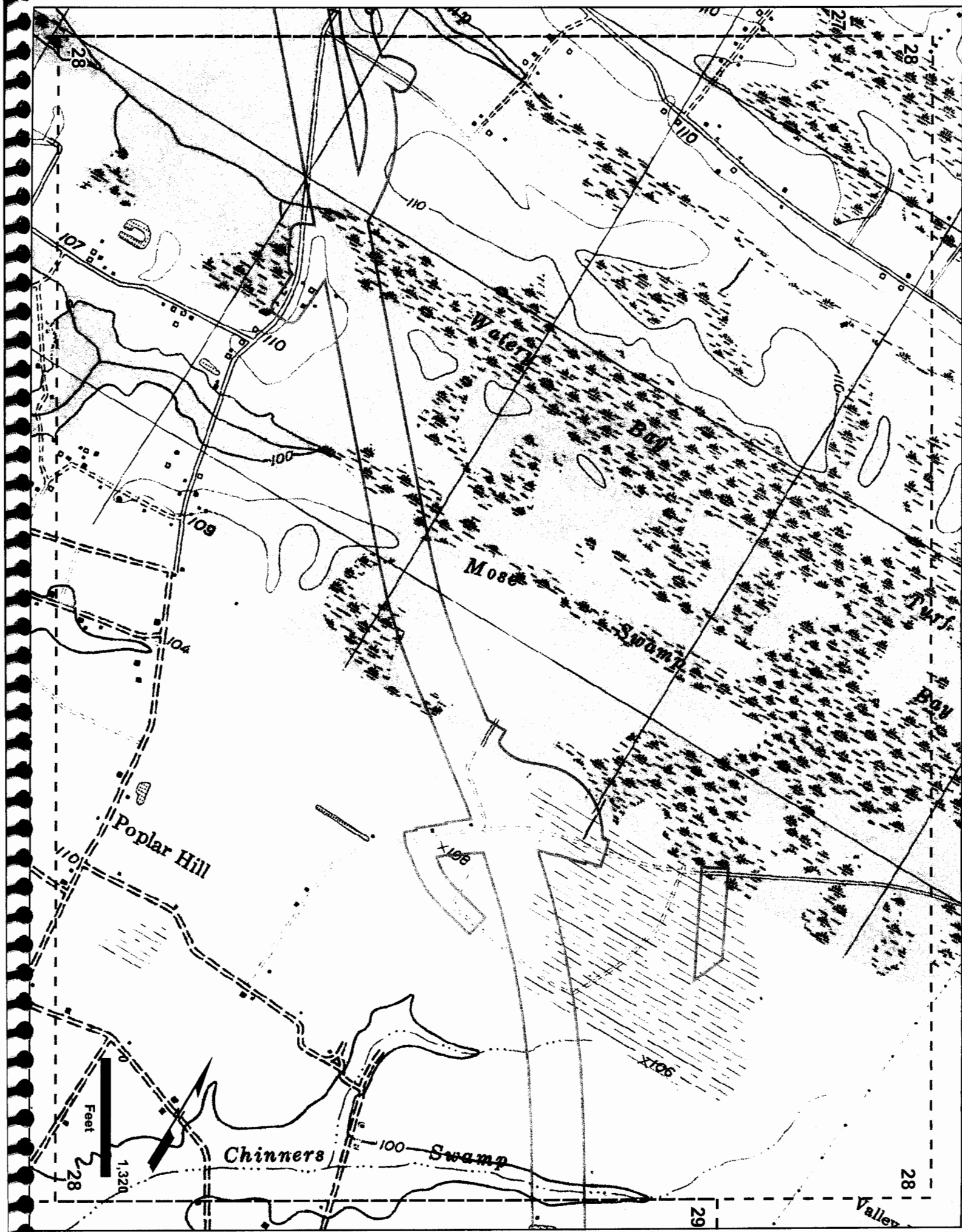
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CONNOR RD

CONNOR RD

WICK RD





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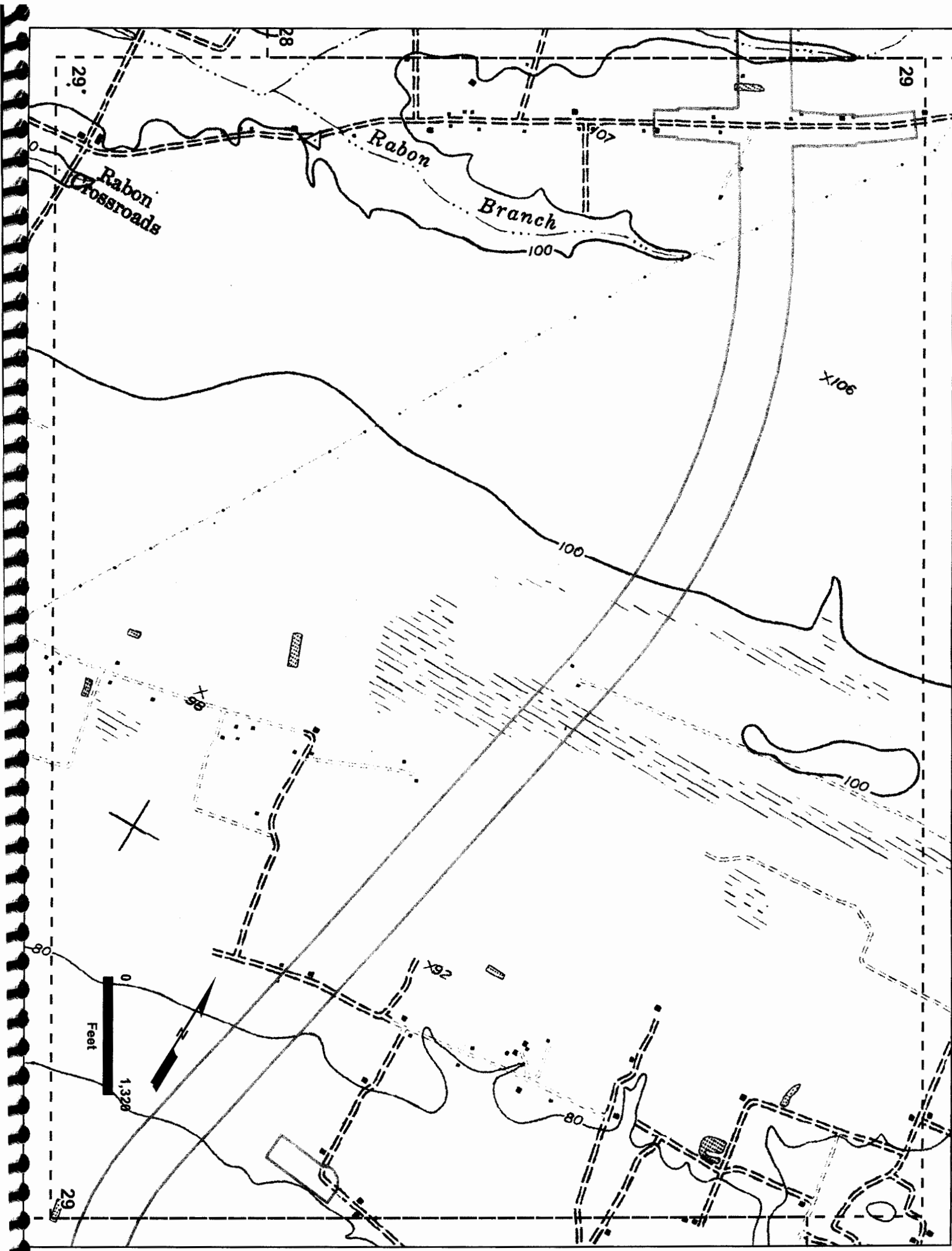
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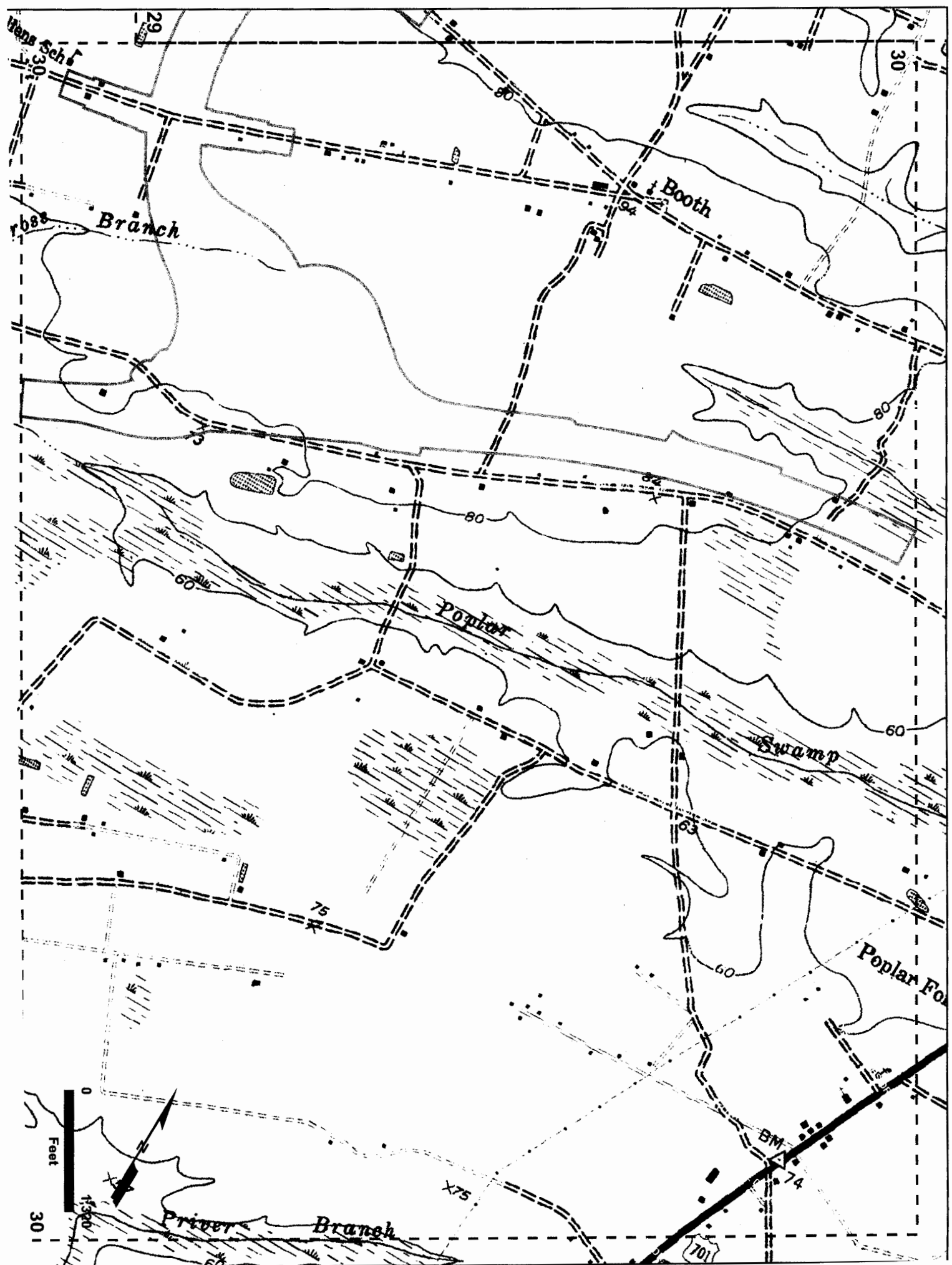
ED RD

PULINS RD

MARDEN RD

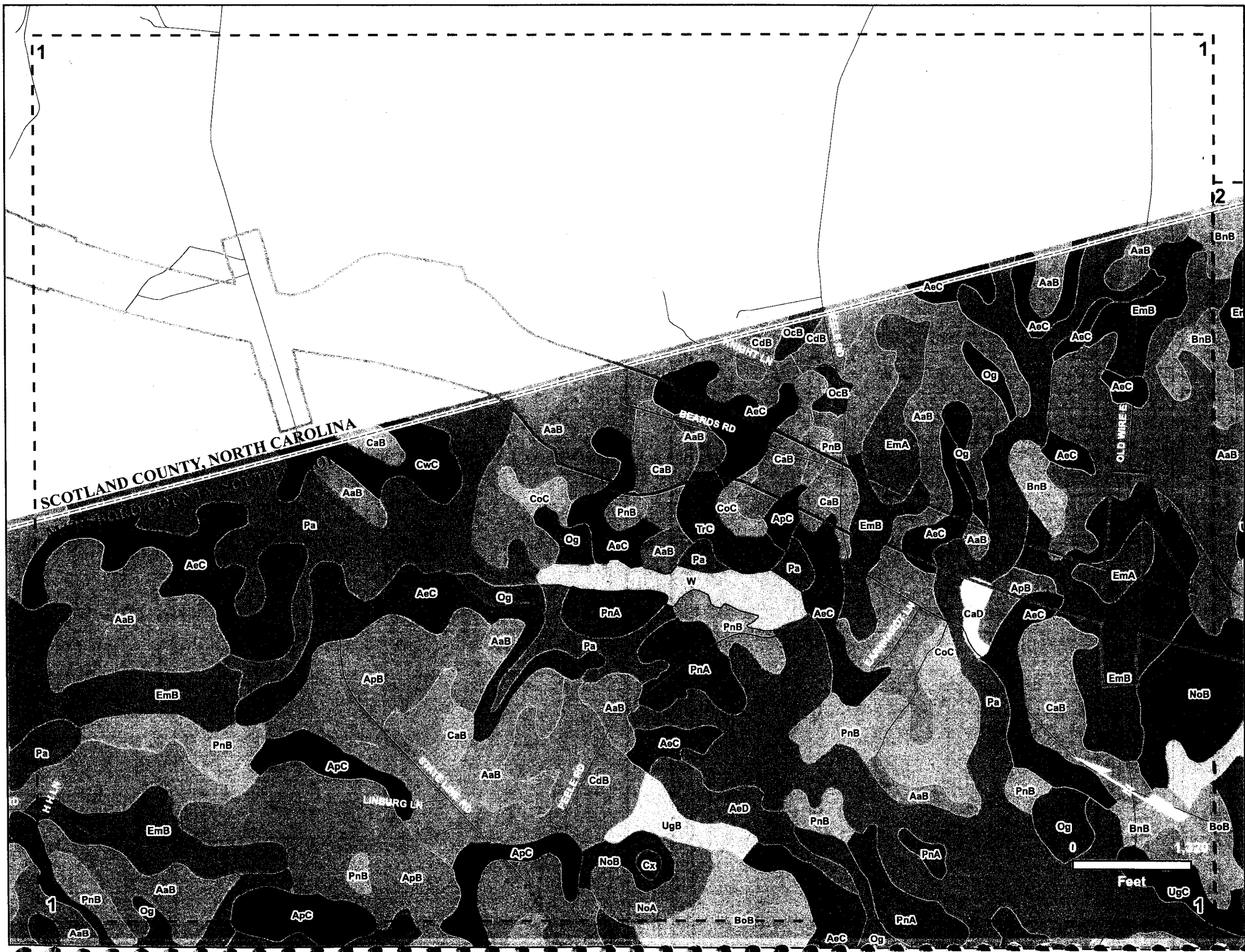
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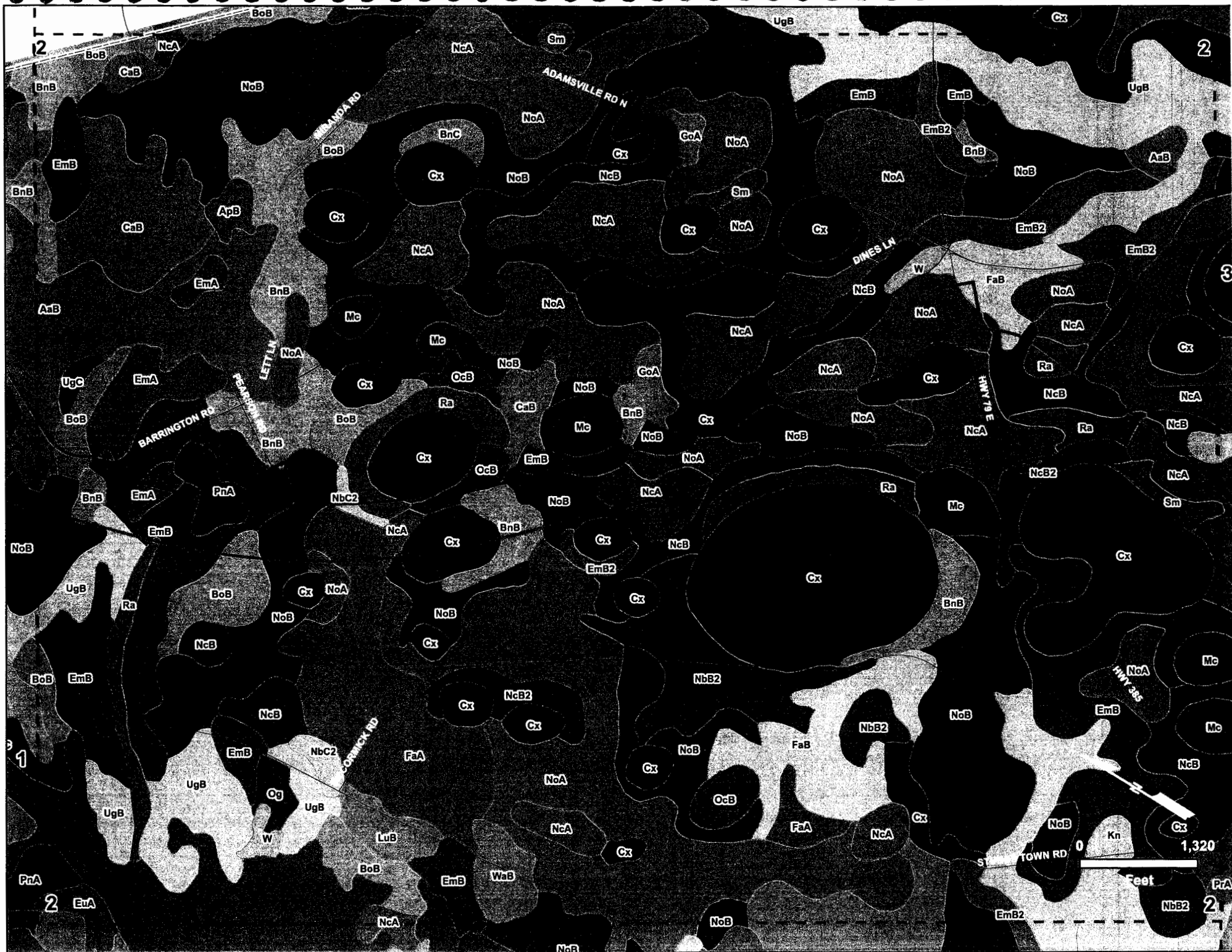
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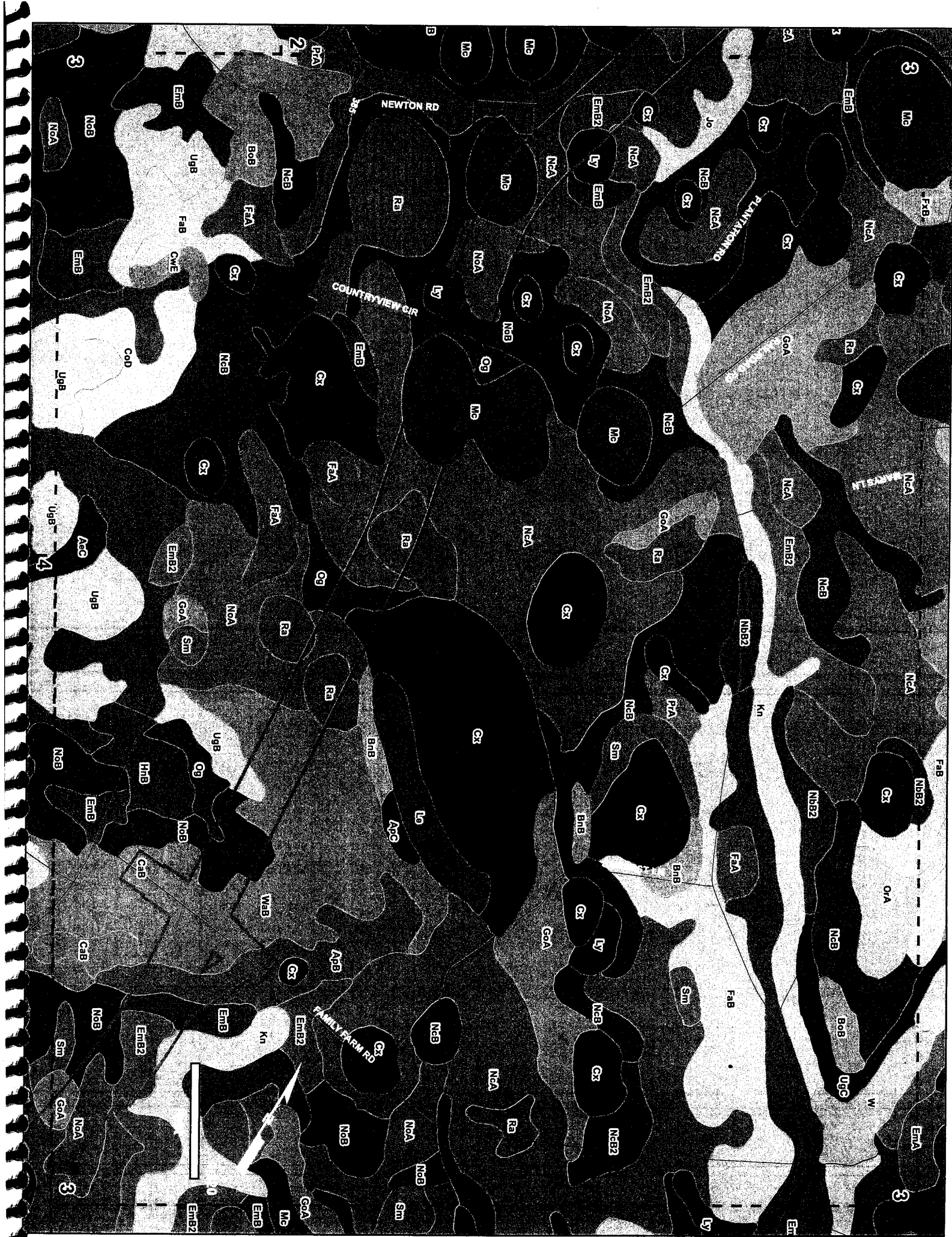


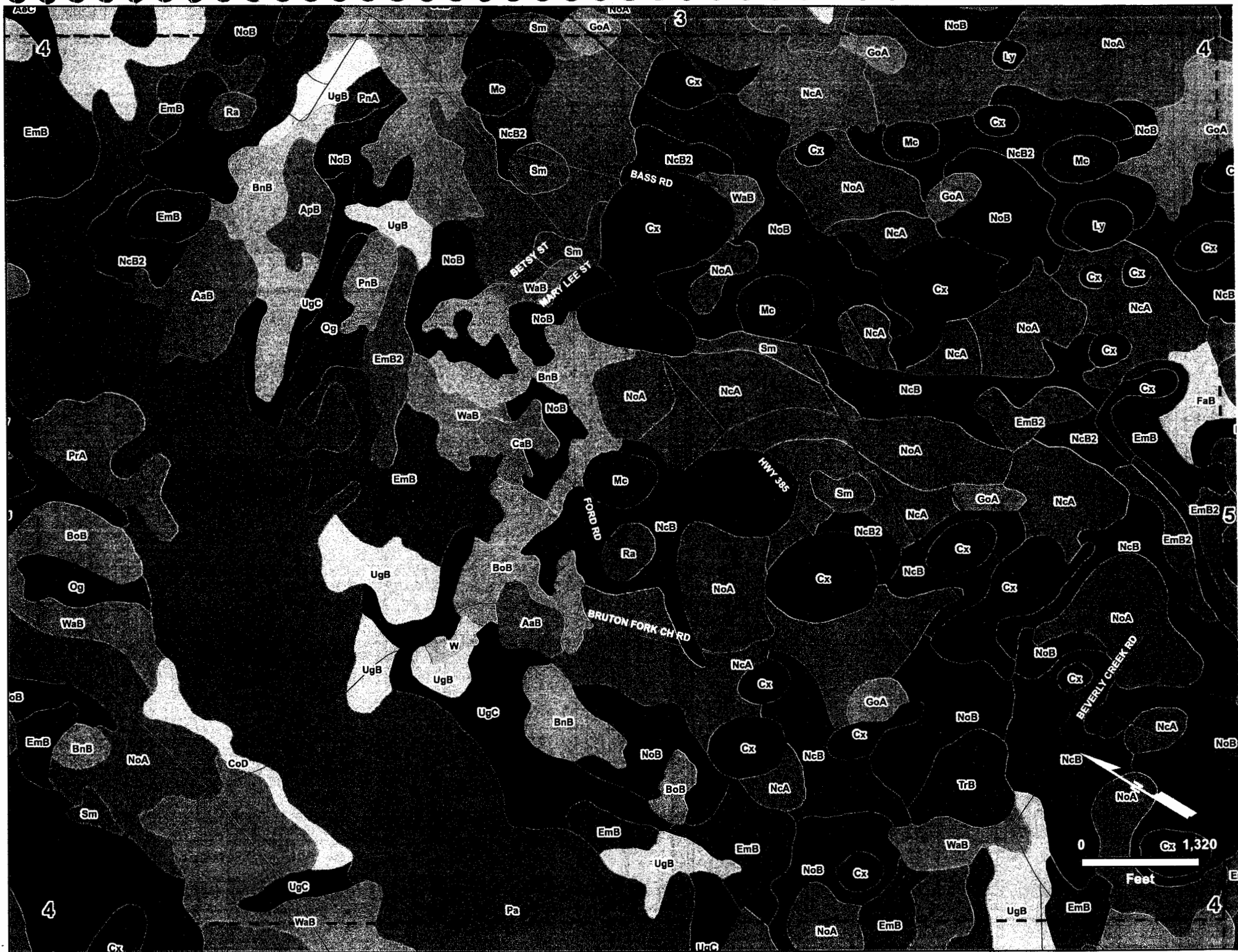






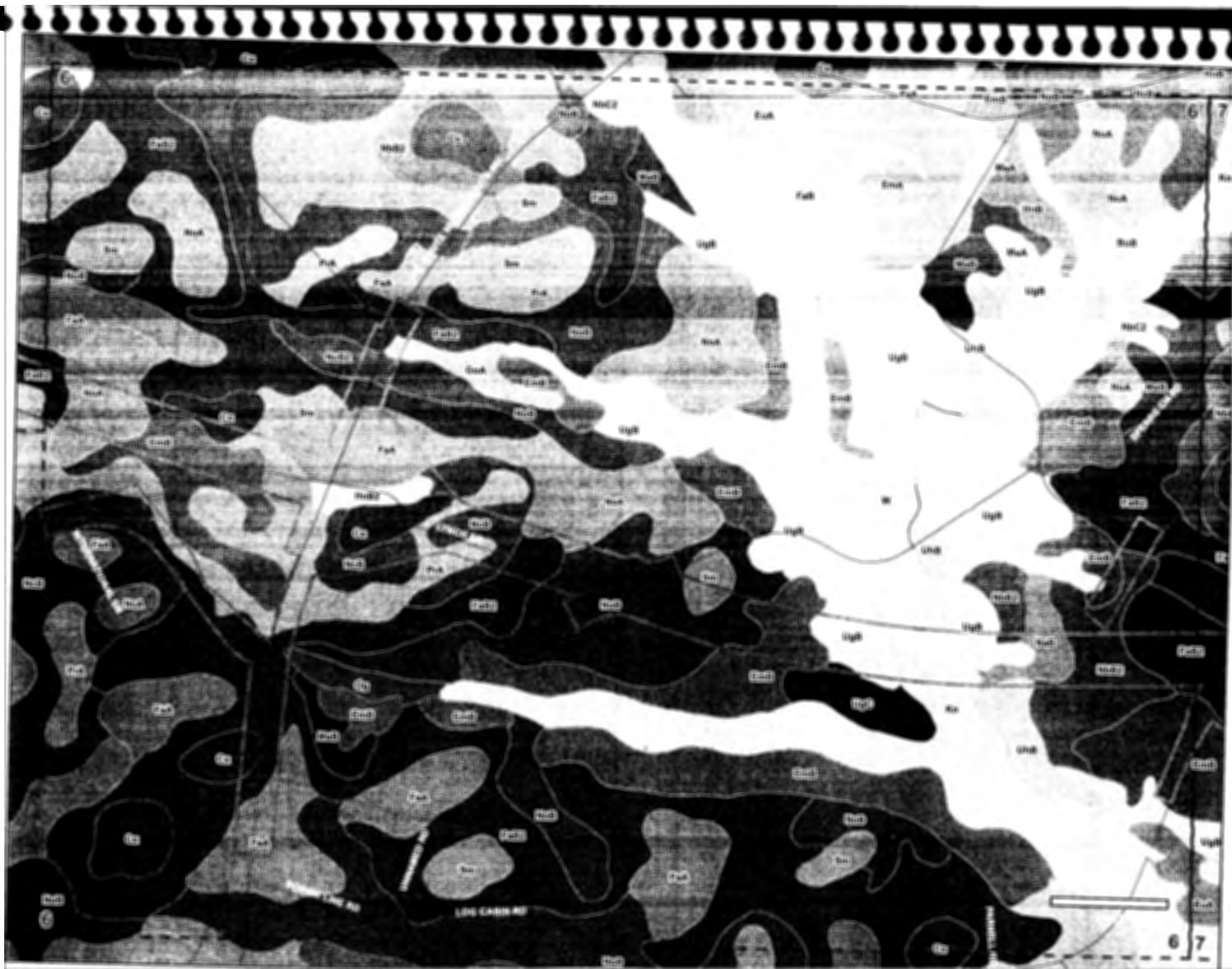












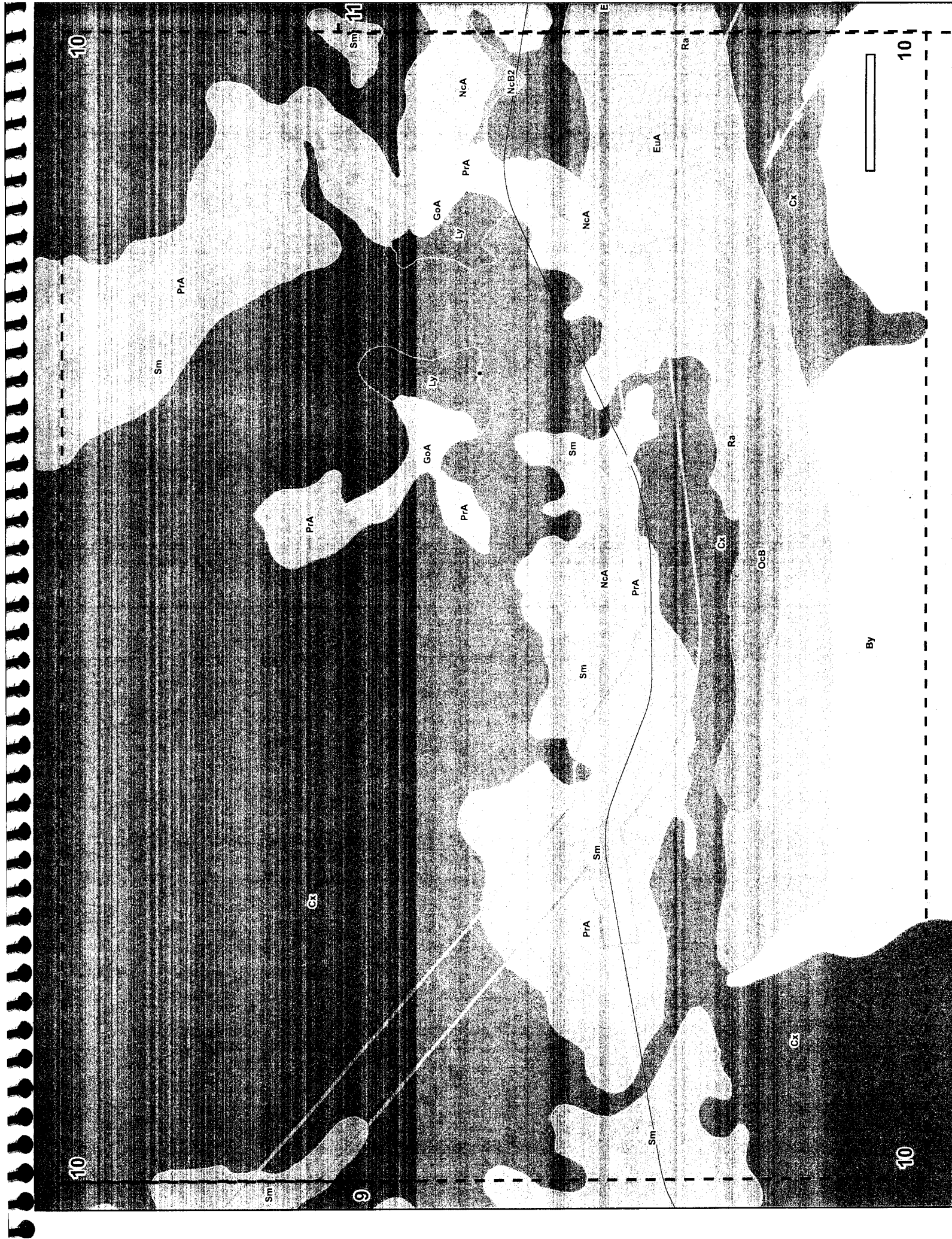




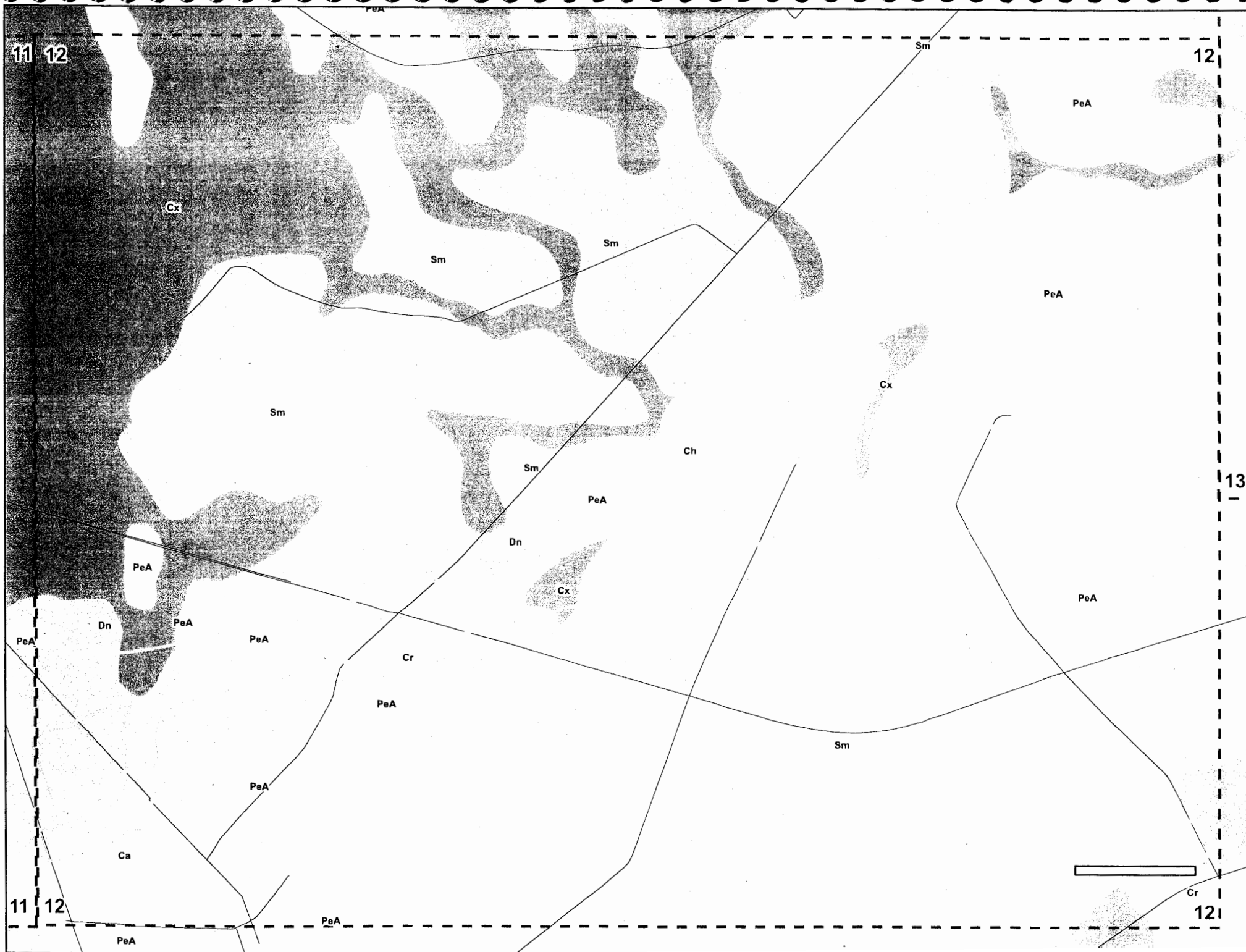








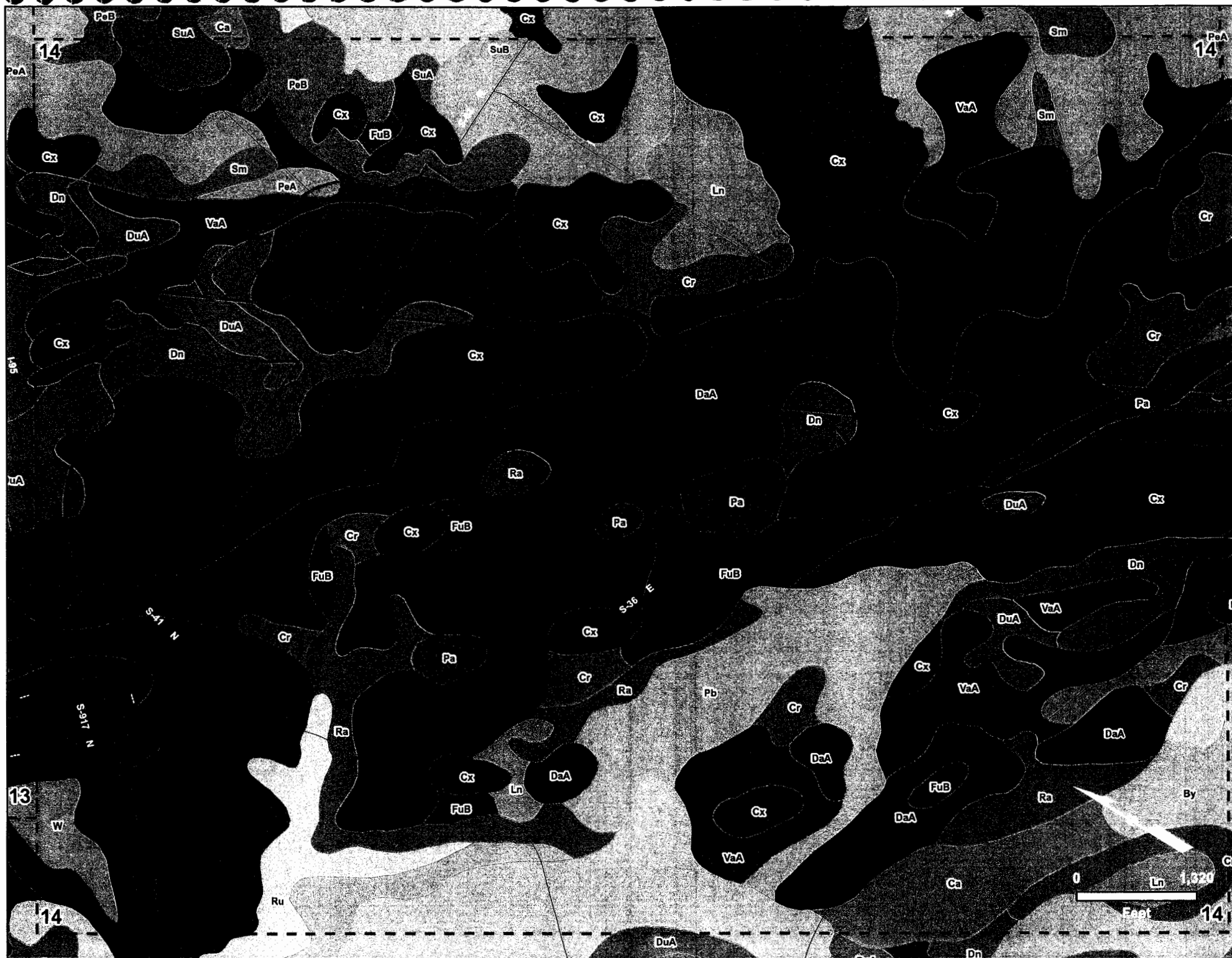


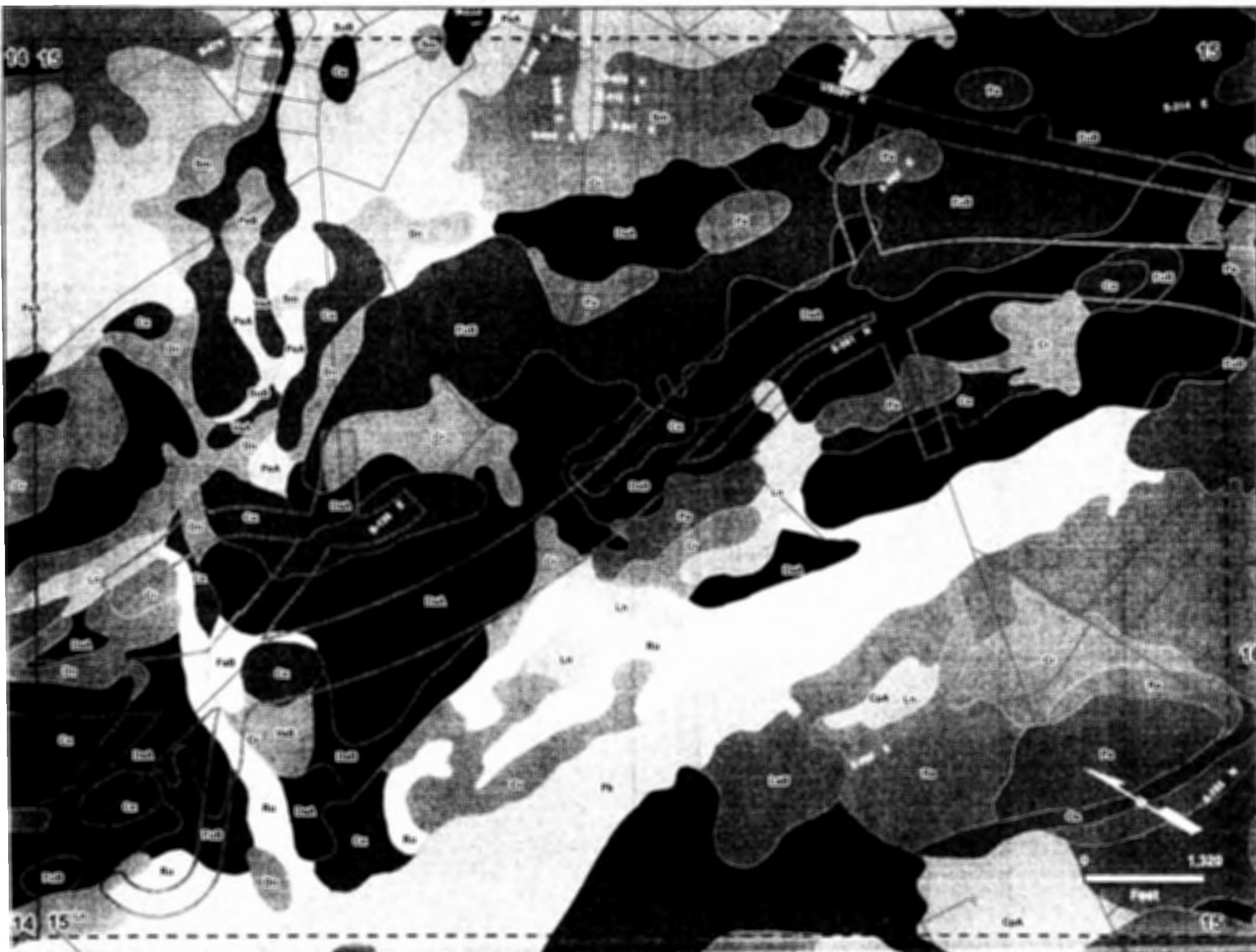






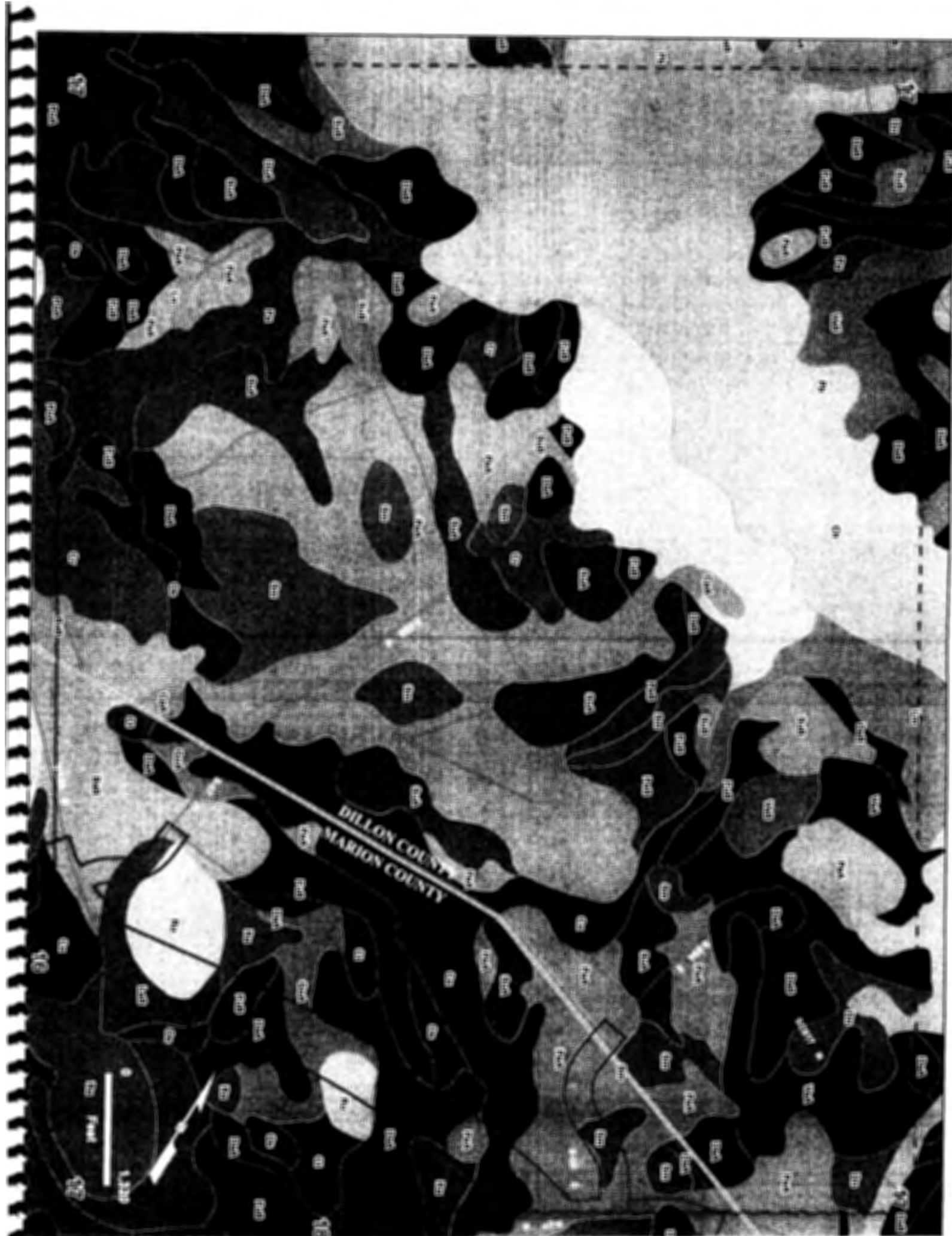




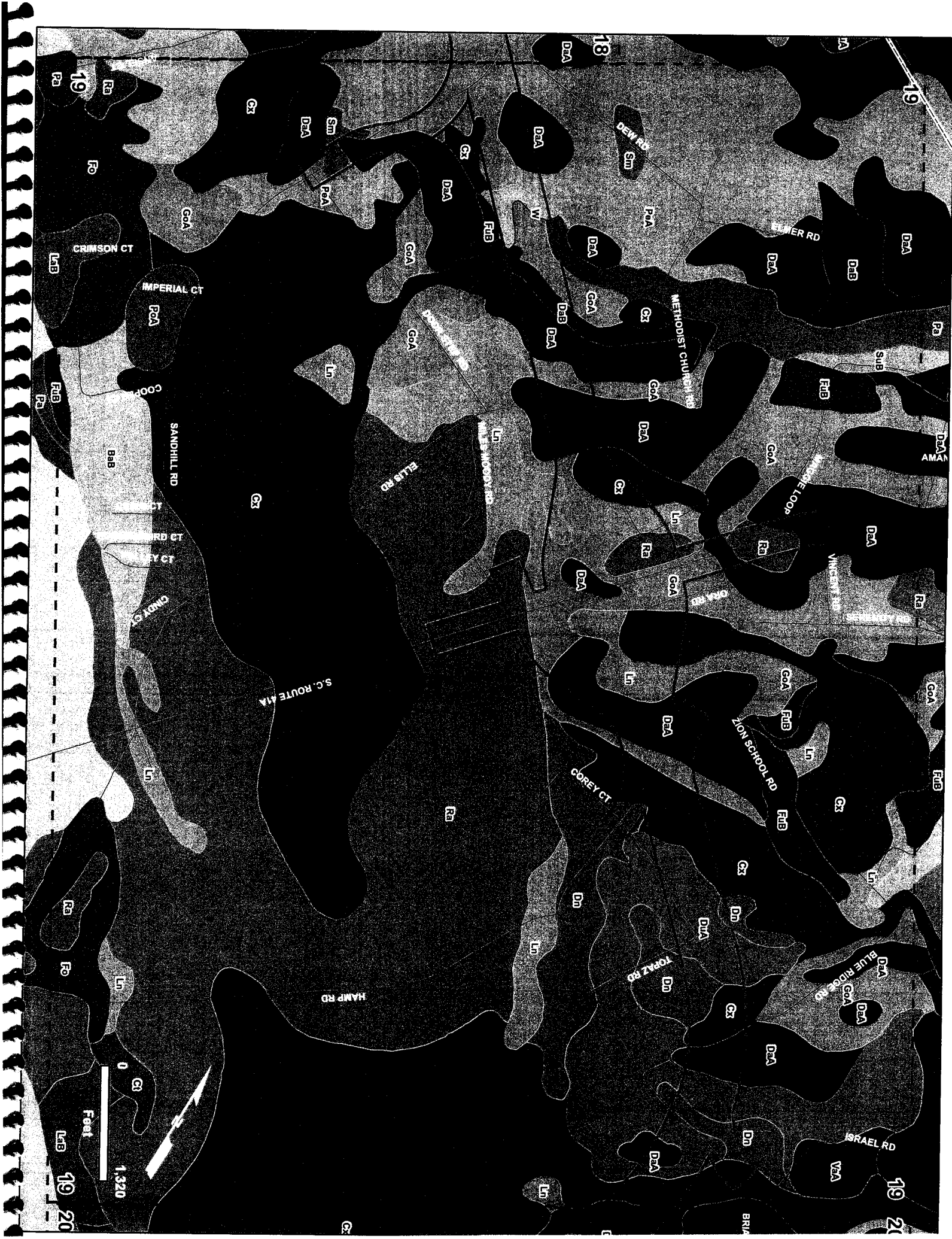




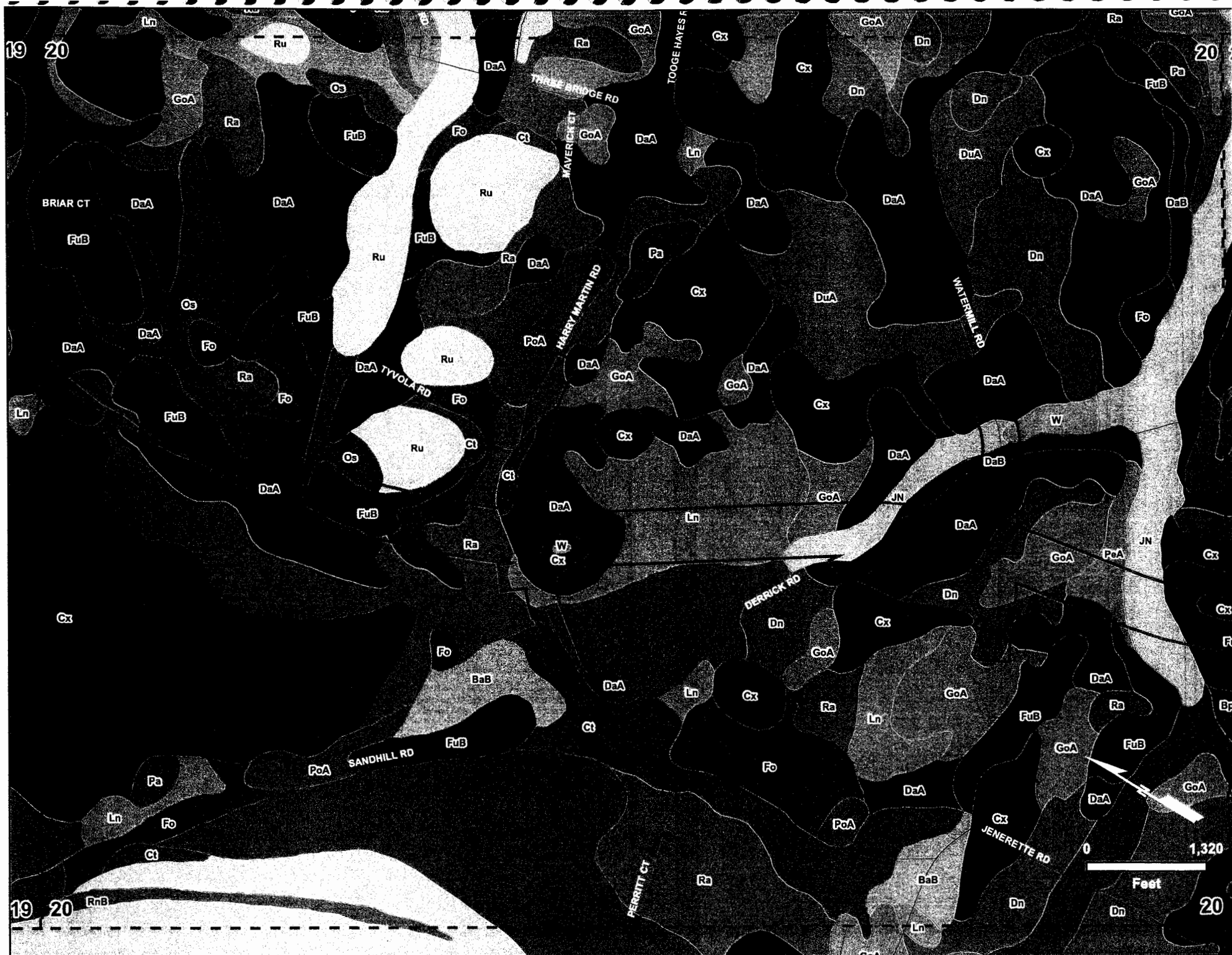






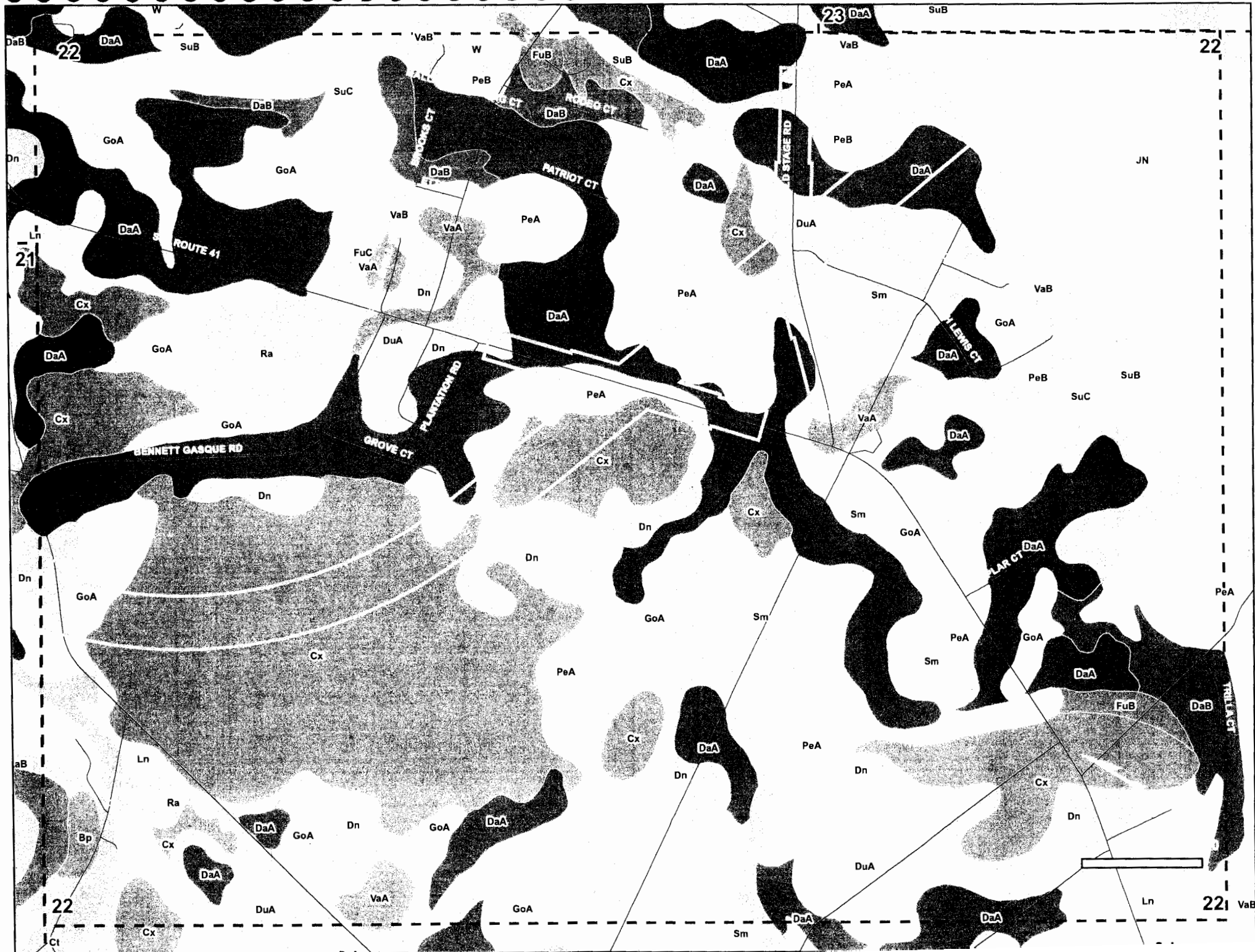








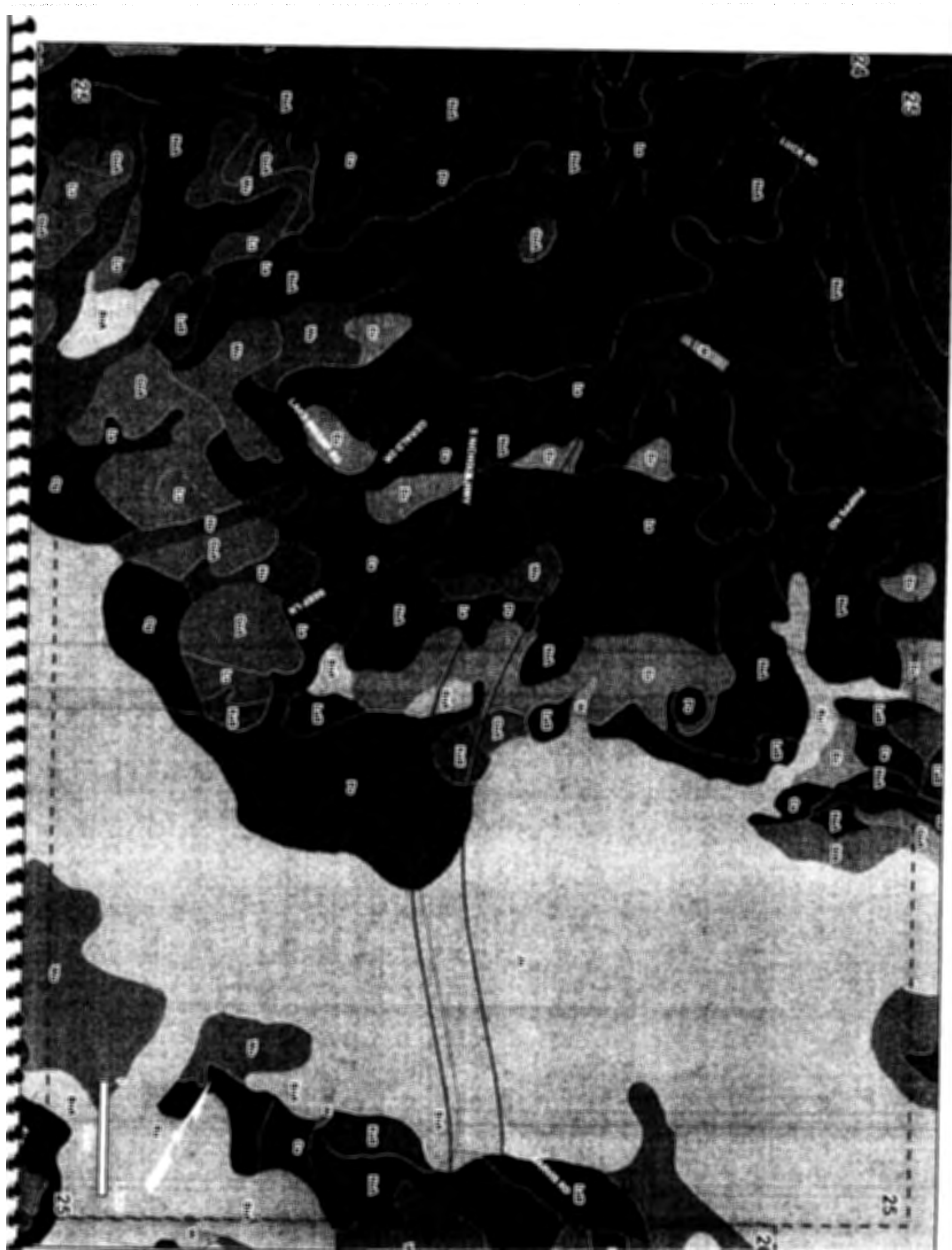






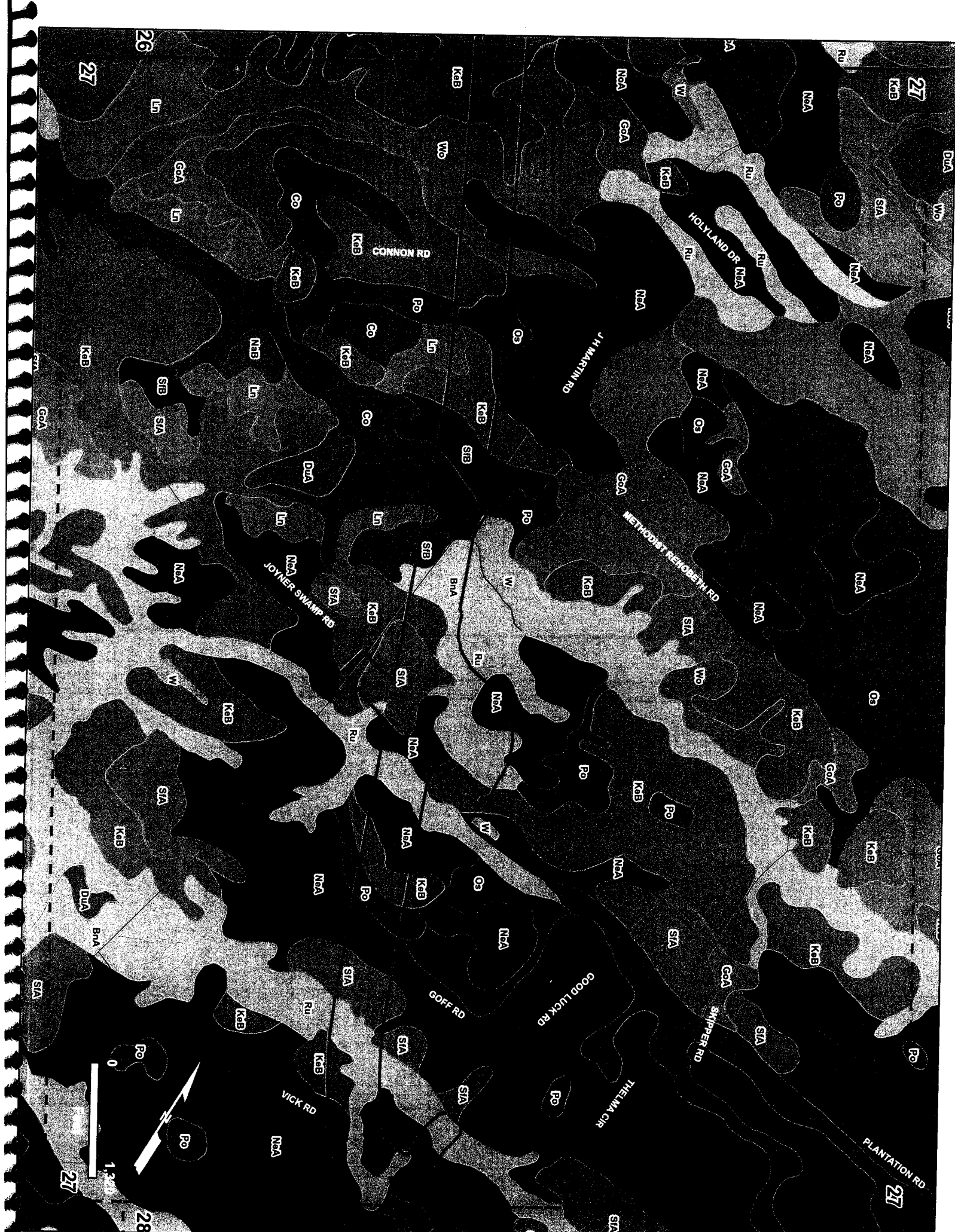


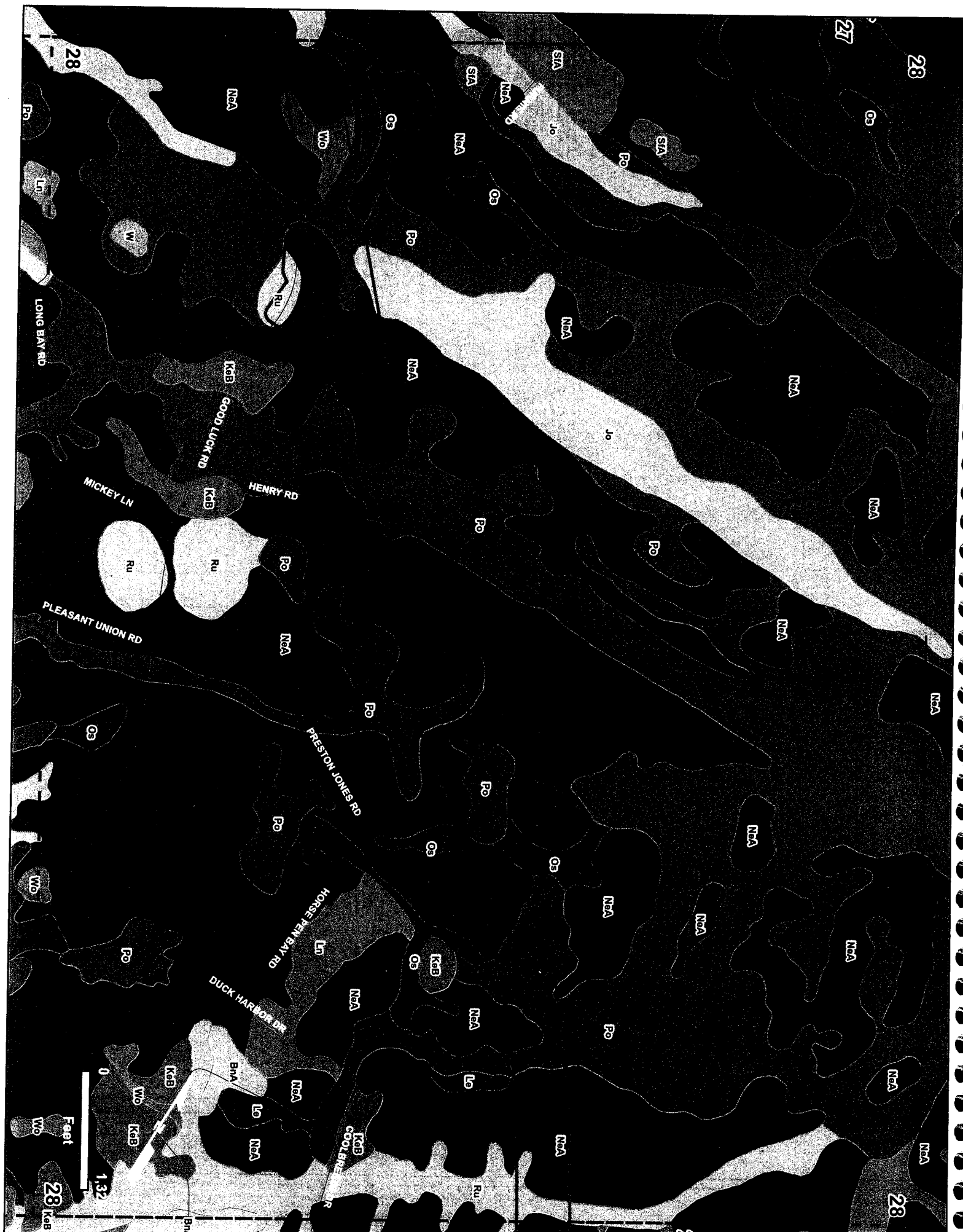


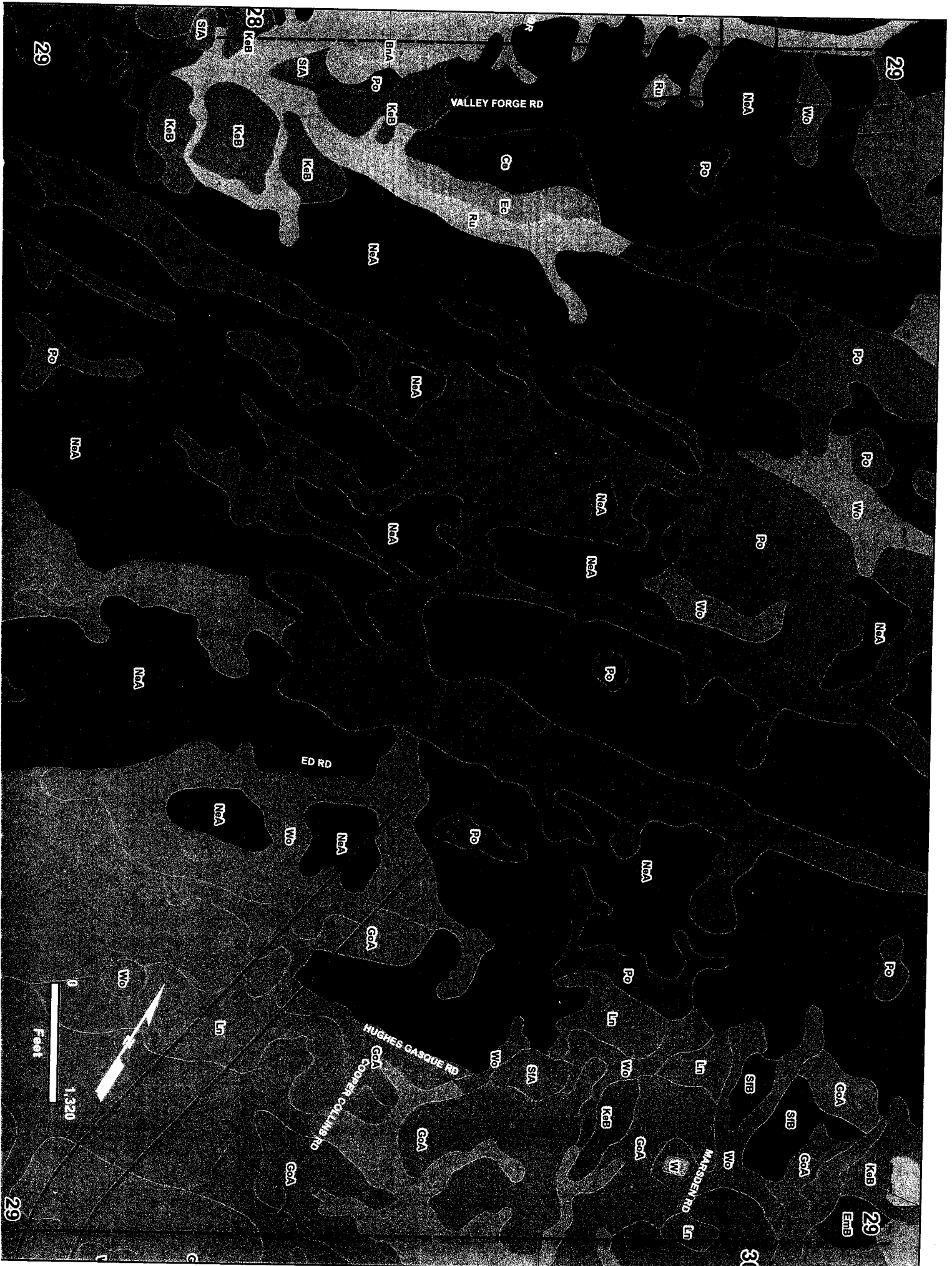












VALLEY FORGE RD

ED RD

HUGHES GASQUE RD

COOPER COLLING RD

MARSDEN RD

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Feet



# **ENVIRONMENTAL ACE MEETING MINUTES**

**Thursday February 17, 2011**

***Present:***

**Sean Connolly (SC) SCDOT  
David Kelly (DK) SCDAH  
Travis Hughes (TH) USACE  
Steve Brumagin (SB) USACE  
Lis Bleasdale (LB) SCDOT  
Wayne Roberts (WDR) SCDOT  
Henry Phillips (HP) SCDOT  
Ed Frierson (EF) SCDOT  
Claude Ipock (CI) SCDOT  
Jae Mattox (JM) SCDOT  
Susan Davis (SD) SCDNR  
Jaclyn Daly (JD) NMFS**

**Mark Giffin (MG) SCDHEC  
Shane Belcher (JSB) FHWA  
Elizabeth Williams (EW) USACE  
Mark Lester (MCL) SCDOT  
Randy Williamson (RDW) SCDOT  
Danny Johnson (CDJ) SCDOT  
Heather Robbins (HR) SCDOT  
Jackie Galloway (JG) SCDOT  
John Boylston (JDB) SCDOT  
Chad Long (CL) SCDOT  
Mark Leao (ML) US FWS**

***Via Conference call:***

**Kelly Laycock (KL) US EPA**

***Apologies:***

**None**

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## **1. Introduction**

Sean Connolly opened the meeting and introductions were made.

## **2. Old Business**

SC gave an update on the following:

- a) Revised General Permit – SC reported that there were still comments coming in from various agencies and that the new revised GP will be out in August 2011.
- b) Nationwide Permits – SC reported that this is out on public notice and that NPs 3 & 14 have incorporated the 2008 Mitigation Banking rule. MG reported that DHEC is currently approving or waiving NPs. MG to send a copy of the letter stating this to us.

## **3. APPR Update**

SC passed on information regarding the imminent APPR site visit. LB is to pass on Susan Davis and Mark Leao's contact information to Nick Vakili-Rad and Chad Amick, to be included in future site visits.



**4. Discussion on SC 41 Bridge replacement over the Wando River  
(Charleston/Berkeley County)**

JM gave a brief overview of the project and general discussion took place. He reported that it had been agreed that a moveable structure will be built with construction RFP in early summer.

**5. Discussion on Design Build Projects – *Permit Process and Recommended Procedure***

JDB gave a brief overview on how the Design Build option has come to the fore and explained that the Low Country RPG would be heading this up. The primary questions being asked are; a) how permits will be issued and; b) what time limits there may be. He stated that the Design Build method should be used by Program Managers as an additional, optional tool, rather than the standard.

It was suggested that each project should be looked at individually on a case-by-case basis and that perhaps a pre-scoping meeting take place (to include the various agencies) to identify any risks and/or concerns, with the findings added to the RFP. It was also suggested that a preconstruction meeting be held whilst the NEPA process is progressing, to incorporate environmental commitments. General discussion took place. It was requested by the Corps that SCDOT, not the contractor, continue to be the permittee, including any Modifications, Compliance and/or Mitigation. The Corps also asked for the Design Build contractor to understand the needs of the Corps and work closely with them. This process will allow the **most accurate** plans at the time the permit application is submitted.

TH suggested following a basic 'standard' format for each Design Build project and for a team to be assembled on a case-by case basis to review and assist the process. TH also suggested the formation of a MOU NEPA merger agreement between FHWA, SCDOT and USACE to formalize the process and have a standard agreement between agencies.

It was agreed that JDB, SC and CI will meet to decide the next steps necessary to move forward in the process, including the possibility of developing a separate MOU for Design Build.

**6. AOB**

LB to add Kelly Laycock (US EPA) to list of ACE Meeting participants

**7. Next Meeting**

March 10, 2011 - Columbia

**8. Adjourn**

The meeting adjourned at approx 11:17am



## **I-26 Widening and Rehabilitation**

Lexington & Calhoun Counties

PIN: 38170  
File: 932.038170

Project Description: Widen existing I-26 from 4 lanes to 6 lanes from approx. MP 115 (I-77 interchange) east to approx. MP 125.5.  
Project includes the replacement of the WB mainline bridge over the CSX RR and the jacking of C-759 (Old Wire Rd) bridge.  
Rehab existing I-26 from approx. MP 125.5 to approx. MP 136.

Termii: MP 115 to MP 125 - Widening  
MP 125 to MP 135 - Rehabilitation

Project Length: 21 miles

Committee Members: **RFP Committee**

Boylston, Chair	Pre-Constr.
Ipock	Construction
TBD	
TBD	
TBD	
Wessinger (Non-voting)	Legal
Kitowicz (Non-voting)	FHWA

**Resource Members**

Lacy	Pre-Constr.
Dillon	Traffic Eng
Jones	District 1
Gantt	Pre-Constr.

**Milestone Schedule**

**Schedule**

**Actual**

Approval to Develop RFP

Value Engineering Study

Receipt of FONSI

FHWA Review (DRAFT)

Deadline for Proposers to submit written questions

Deadline for SCDOT to respond to written questions

Submittal of Proposals

Notice of Selection

Award/Contract Execution

NTP

## **SC Route 41 Bridge Replacement over the Wando River**

Berkeley and Charleston Counties

PIN: 32098  
File: 8.158b / 10.032101

Project Description: Replace existing swing span on SC 41 Bridge over the Wando River with a bascule type movable bridge.

Termi: from: Harpers Ferry Way and along a portion of Clements Ferry Road  
to: intersestion with Reflectance Road

Project Length: 0.32 miles

Committee Members: **RFP Committee**

Boylston, Chair	Pre-Constr.
Mattox	Pre-Constr.
Ipock	Construction
Glenn	District 6
Bowers	Pre-Constr.
Wessinger (Non-voting)	Legal
Kitowicz (Non-voting)	FHWA

**Resource Members**

Curtis Brice	District 6
Clay Bodiford	District 6
Jeff Rajabi	District 6
Ben McKinney	Pre-Constr.

**Milestone Schedule**

**Schedule**

**Actual**

Receipt of FONSI

Approval to Develop RFP

Value Engineering Study

FHWA Review (DRAFT)



Deadline for Proposers to submit written questions

Deadline for SCDOT to respond to written questions

Submittal of Proposals

Notice of Selection

Award/Contract Execution

NTP

## **Package "A" Bridge Replacements**

Chesterfield, Horry, and Marion Counties

PIN: 40460\_PE01  
File: 1326.040460

Project Description: Replace three (3) bridges listed below:

<u>County</u>	<u>Route</u>	<u>Over</u>	<u>Env. Doc.</u>
Chesterfield	S-22	Thompson Creek	CE
Horry	S-24	Pawley's Swamp	CE
Marion	SC 41	Marsh Creek	CE

Committee Members:

### **RFP Committee**

Boylston, Chair	Pre-Constr.
Amado	Pre-Constr.
Bowers	Pre-Constr.
Ipock	Construction
Johnston	District
Wessinger	Legal (Non-voting)
Kitowicz	FHWA (Non-voting)

### **Resource Members**

Elgin	Pre-Constr.
Frierson	Environmental
Rister	Construction
Thompson	District

### **Milestone Schedule**

### **Schedule**

### **Actual**

Approval to Develop RFP

Receipt of FONSI

FHWA Review (DRAFT)



Deadline for Proposers to submit written questions

Deadline for SCDOT to respond to written questions

Submittal of Proposals

Notice of Selection

Award/Contract Execution

NTP

## **Package "C" Bridge Replacements**

Laurens , Union, and York Counties

PIN: 39441\_PE01

File: 4446.039441

Project Description: Replace six (6) bridges listed below:

<u>County</u>	<u>Route</u>	<u>Over</u>	<u>Env. Doc.</u>
Laurens	SC 308	Duncan Creek	CE
Union	SC 72	Cane Creek	CE
Union	S-134	Buffalo Creek	CE
Union	S-279	Fairforest Creek (Off-System)	CE
Union	S-602	Pinckney Creek (Off-System)	CE
York	S-816	Wolf Creek	CE

Committee Members:

### **RFP Committee**

Kinard, Chair	Pre-Constr.
Boylston	Pre-Constr.
Ipock	Construction
Bowers	Pre-Constr.
Johnston	District 4
Wessinger	Legal (Non-voting)
Kitowicz	FHWA (Non-voting)

### **Resource Members**

### **Milestone Schedule (Tentative)**

### **Schedule**

### **Actual**

Approval to Develop RFP

Receipt of FONSI

FHWA Review (DRAFT)

Advertisement

Deadline for Proposers to submit written questions

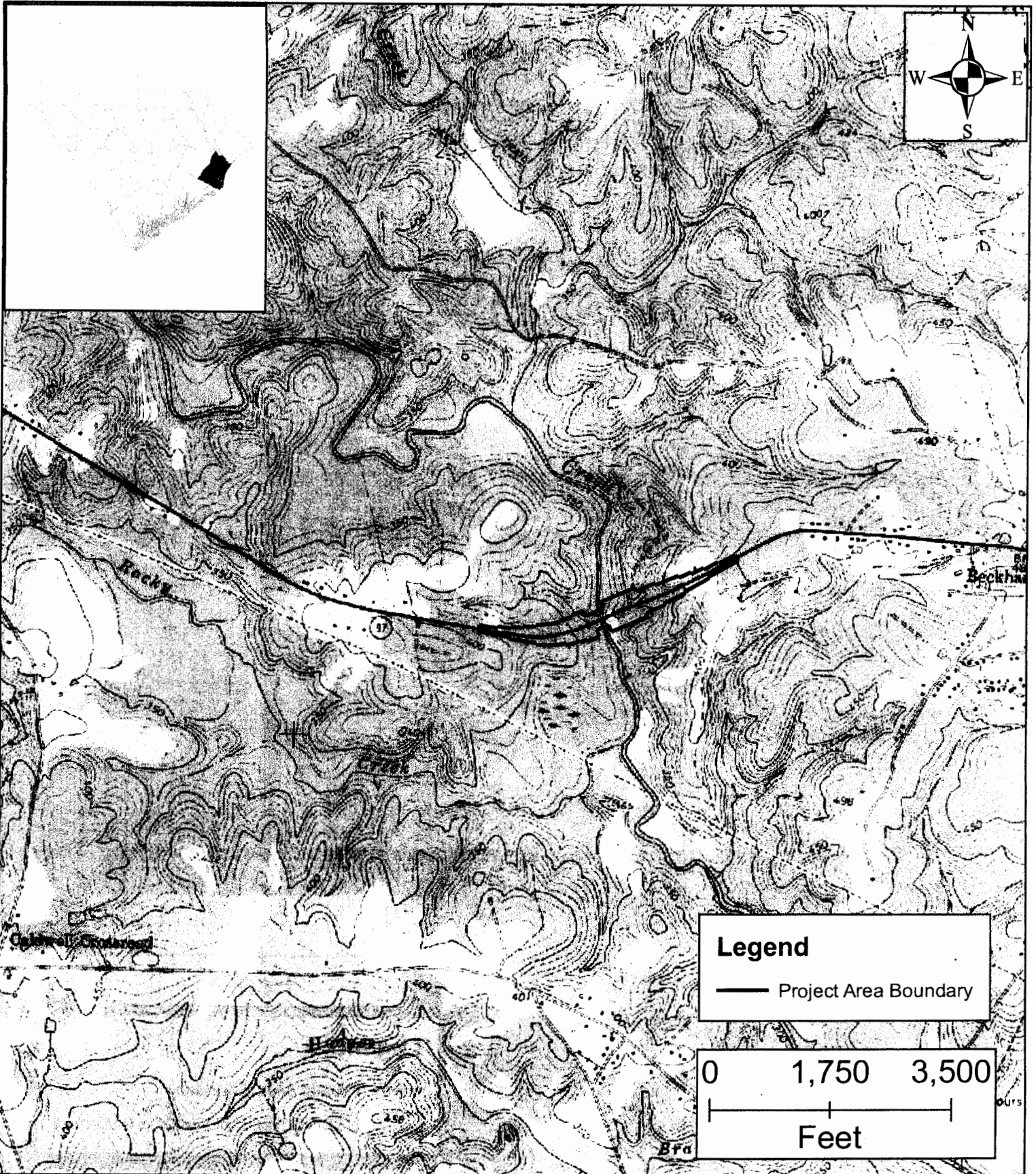
Deadline for SCDOT to respond to written questions


Submittal of Proposals

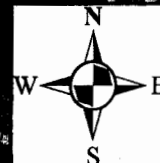
Notice of Selection

Award/Contract Execution

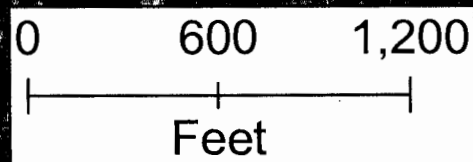
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
Title	Vicinity Map		
Prepared For:	Project	Highway SC 97 - Bridge Replacement Project Chester County, South Carolina	
	Date 01/04/2011		Figure 1




SC 97 Great Falls Highway



### Legend

- Project Area Boundary
-  USFWS National Wetland Inventory

Title		USFWS National Wetland Inventory Map	
Prepared For:	Project	Highway SC 97 - Bridge Replacement Project Chester County, North Carolina	
	Date		Figure
	01/04/2011		3



# The Grand Strand Expressway

## *A Fiscally and Environmentally Responsible Alternative to I-73 Highway in South Carolina*

### Introduction

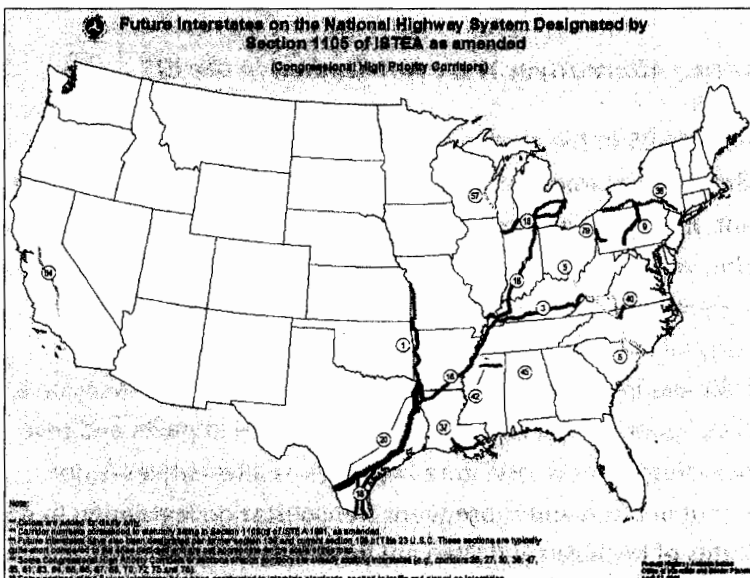
The proposed I-73 Interstate Highway to connect I-95 with Myrtle Beach will be a costly project, and result in environmental impacts to the region's fragile wetlands ecosystem. The EIS identified greater connectivity between I-95 and Myrtle Beach as a primary need for this project, but only examined a new interstate highway as the solution. However, there are numerous variations of roadway design that could be applied to the same purpose which could greatly reduce the costs and environmental impacts. These alternatives should be considered by the SCDOT before it proceeds further in the planning and design of this significant investment. This report provides some alternative concepts for consideration.

### I-73 Background

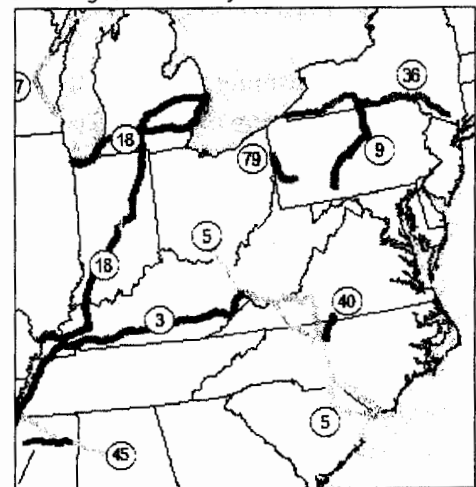
The EIS cites "congressional intent" as a primary reason for only considering interstate highway construction to meet the needs of this project. The new highway proposed between I-95 and Myrtle Beach would be part of a larger "corridor" as defined in legislation as "Priority Corridor 5", as follows:

A. I-73/74 North-South Corridor from Charleston, South Carolina, through Winston-Salem, North Carolina, to Portsmouth, Ohio, to Cincinnati, Ohio, to termini at Detroit, Michigan and Sault Ste. Marie, Michigan. The Sault Ste. Marie terminus shall be reached via a corridor connecting Adrian, Jackson, Lansing, Mount Pleasant, and Grayling, Michigan.

The following graphic shows the configurations of these corridors as defined in broad terms.



Excerpt from map showing Corridor 5, which is the designated routes for I-73 and I-74.



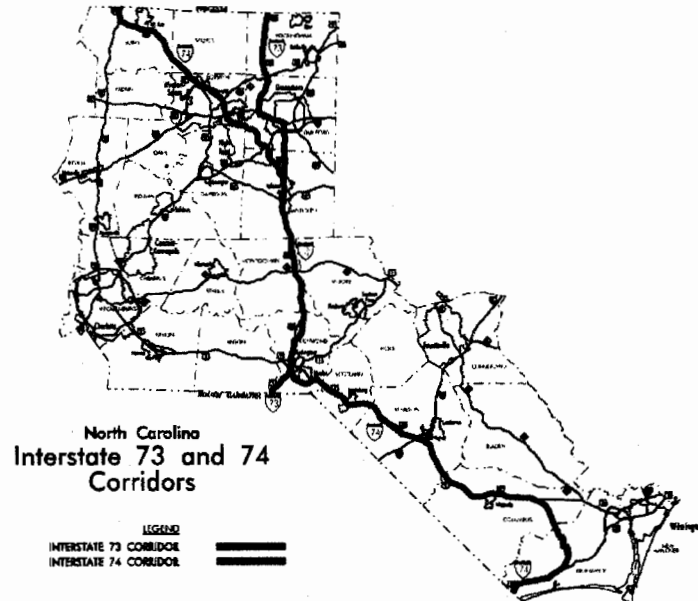
There are several important things to note from the above map, which was prepared in April 27, 2006.

- 1) The I-73 and I-74 corridors are closely intertwined and redundant. Constructing full interstate highways along both corridors would be redundant, excessive, result in unnecessary environmental impacts, and be

wasteful of public or private funds. Currently, both North Carolina and South Carolina are proceeding with separate studies for each corridor, and neither considers the potential of the other corridor in their analysis.

- 2) The above map indicates (correctly) that I-73 is no longer planned through Ohio and Michigan. These states have both dropped the interstate corridor from their long range plans for both fiscal and environmental reasons. The states of Michigan and Ohio are both fulfilling the congressional intent of Priority Corridor 5 by improving existing roadway corridors. The legislative description of this as a priority corridor does not in any way constrain or require the states to construct a new interstate highway.

Another factor that is not considered in the EIS is the redundancy with the proposed I-74 corridor in North Carolina. This corridor is nearly parallel with the proposed I-73, but this is not considered in defining the need in the EIS.



### ***TSM (Transportation System Management) Alternatives Were Not Studied in the EIS***

There are currently several routes that connect I-95 to the Myrtle Beach area, with the Route 38/501 corridor being the most heavily traveled. Providing an improved connection to I-95 does not require an interstate highway, and there are significant opportunities to improve the existing conditions through strategic investments in the existing corridor, which could include intersection improvements, grade separated interchanges, and some bypass segments where appropriate. A set of improvement to existing corridors has potential to have nearly all of the same benefits of the proposed interstate highway at a fraction of the cost, and with far less impact to the environment. The EIS single focus on a new interstate highway eliminates numerous opportunities to reduce environmental impacts and save taxpayer money. The narrow focus on only evaluating new interstate highways as alternatives is not necessary, and the congressional intent set out in ISTEA and subsequent transportation legislation in no way requires an interstate highway. The states of Michigan and Ohio are intending to fulfill congressional intent through modest improvements to existing corridors, an approach that should be included in this EIS essentially as a "TSM" alternative. Federal guidance states that TSM alternatives should be included in environmental documentation, including in cases where a new road is proposed as a "connecting link", such as this I-73 EIS. FHWA also clearly states that projects that propose a roadway

on new alignment in a rural area should examine the potential of upgrades on existing roads to address the needs.

While the above discussion relates primarily to major projects in urbanized areas, the concept of achieving maximum utilization of existing facilities is equally important in rural areas. Before selecting an alternative on new location for major projects in rural areas, it is important to demonstrate that reconstruction and rehabilitation of the existing system will not adequately correct the identified deficiencies and meet the project need. (FHWA Environmental Toolkit, <http://www.environment.fhwa.dot.gov/projdev/impta6640.asp#alts>, accessed 2/16/2011 5:56:26 PM

Transportation System Management must be included as an alternative or design option where applicable. <http://www.environment.fhwa.dot.gov/projdev/tdmpdo.asp>, accessed 9/20/2007 4:09 PM

## **An Alternative: The Grand Strand Expressway**

### ***Expressways***

An expressway does not have a single definition, but many state departments of transportation have their own working definition of an expressway. In general, it is a four lane divided roadway, with access limited but not completely controlled, and a combination of some at-grade intersections with grade-separated interchanges at the major junctions. A Grand Strand Expressway could be constructed largely by upgrading existing roadways, perhaps with some short segments of new construction.

The Route 501 corridor between I-95 and Conway meets many of these characteristics, but as it has not been upgraded recently, many of the intersections are designed as well as they could be for a new expressway design. The North Carolina DOT has upgraded many corridors to an expressway<sup>1</sup> as an alternative to full interstate highway standards as a more affordable, and easily implemented option.

Expressway could take advantage of innovative intersection designs, which are being used very successfully in NC along several rural expressway corridors. NCDOT has completed a comprehensive research program on “superstreet” design, which could be applied to the Grand Strand Expressway to improve the safety and efficiency of the corridor’s at-grade intersections.

The benefits of expressway option include the far greater flexibility, as implementation can unfold in stages, which is not possible when constructing a limited access highway on a new alignment. The cost will be far lower, as the amount of property acquisition would be considerable lower, due to the smaller footprint and right-of-way costs. This would also reduce the environmental impact of the corridor improvements, as much less of the route would need to traverse currently undisturbed wetland habitat.

### ***Superstreet Intersection Design***

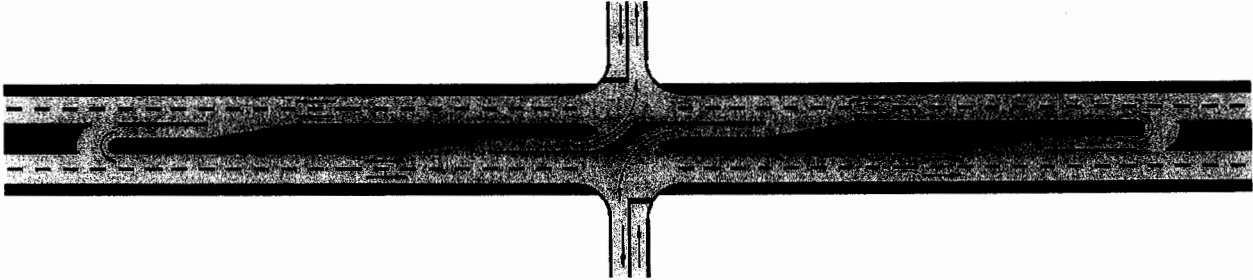
The North Carolina DOT has conducted detailed research on “superstreet” intersection designs along both suburban arterial and rural expressway corridors, and found that these design techniques have

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<sup>1</sup> <http://www.ncdot.org/doh/preconstruct/tpb/SHC/facility/Expressways/>

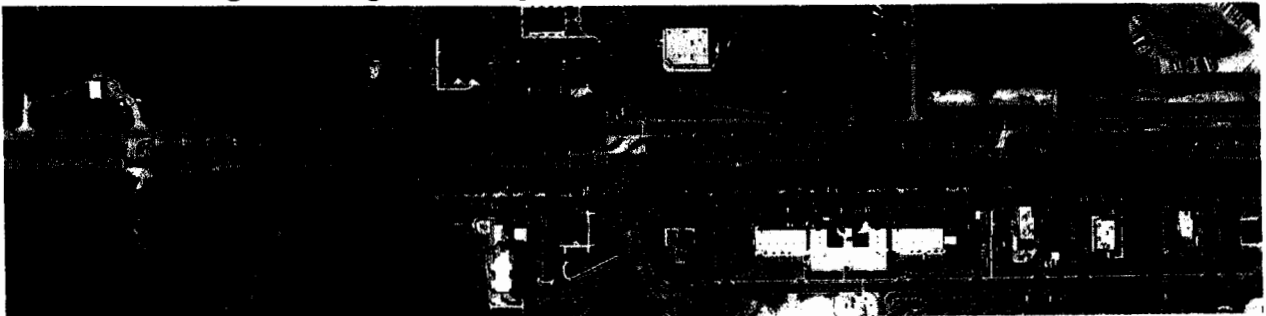
promise to improve safety and capacity of intersections<sup>2,3</sup>. Several schematics below show a typical expressway unsignalized intersection, where the minor roadway stops before entering or crossing the expressway. The Superstreet, or “J” unsignalized intersection design, shown below, is an alternative that can improve both the safety and efficiency, especially during high volume periods such as summer changer over weeks.

#### ***J Intersection for Superstreet Expressway Design***



A recently completed “superstreet” upgrade of an arterial on Route 17 in Wilmington, NC provides a nearby example of this intersection configuration. While this application is in an area with more suburban development patterns, with signalized intersections and higher traffic volumes, it does offer an example of these intersection designs. There are also many unsignalized corridors that have used these intersection design concepts, with several examples shown below.

#### ***Route 17, Wilmington NC, Signalized Superstreet Intersection***



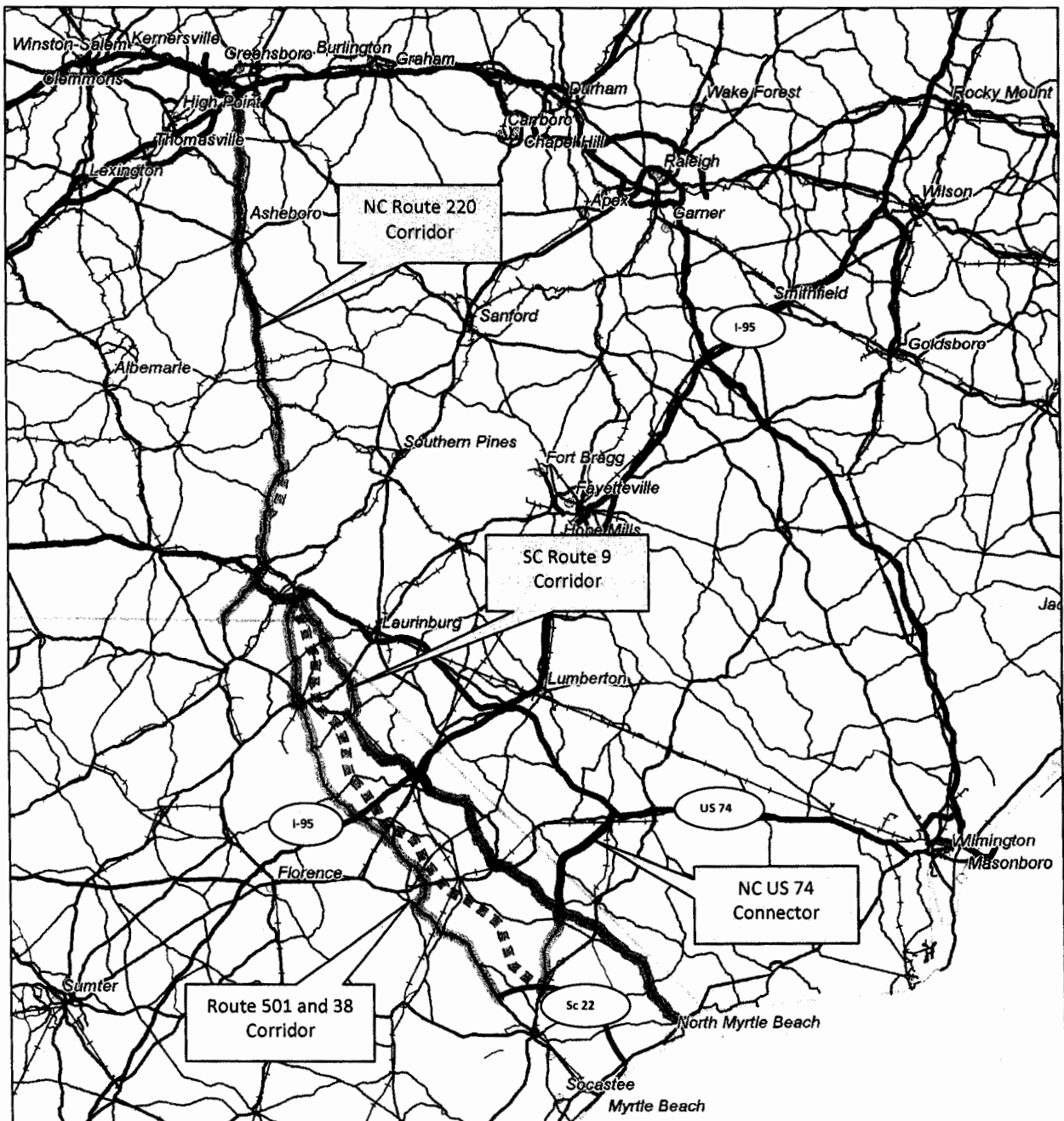
<sup>2</sup> An Update on Superstreet Implementation and Research, Hummer, Joseph E. Ph.D. and P.E., and Jagannathan, Ram. Submitted to Eighth National Conference on Access Management, Transportation Research Board, Baltimore, MD, July 2008. <http://www.accessmanagement.info/AM08/AM0807Hummer/AM0807Hummer.pdf>

<sup>3</sup> North Carolina DOT website on Superstreets:  
<http://www.ncdot.gov/doh/preconstruct/tpb/SHC/facility/superstreet/>

***Route 17, Wilmington NC, Unsignalized Superstreet Intersection*****Expressway Alternative Concepts**

For purposes of illustrating how the concepts of expressway upgrades could be considered for alternatives to the proposed I-73, several options are presented in this report for consideration. These are presented as planning level concepts for discussion, and may merit further consideration in the EIS process, which should be amended to include non-interstate highway alternatives. These alternatives are proposed as upgrades of existing facilities to an expressway, in addition to sections of new construction where there would be significant environmental or economic impacts of an upgrade. Three options include:

- **Route 501:** From I-95 SC Route 38 to US 501 to Route 22
- **Route 9:** From I-95 SC Route 9 to SC 31 to Carolina Bays Highway
- **NC Connector:** From US 74 (future I-74 in North Carolina), near Whiteville, to SC Route 22 via a combination of new construction and upgrade of local roadways



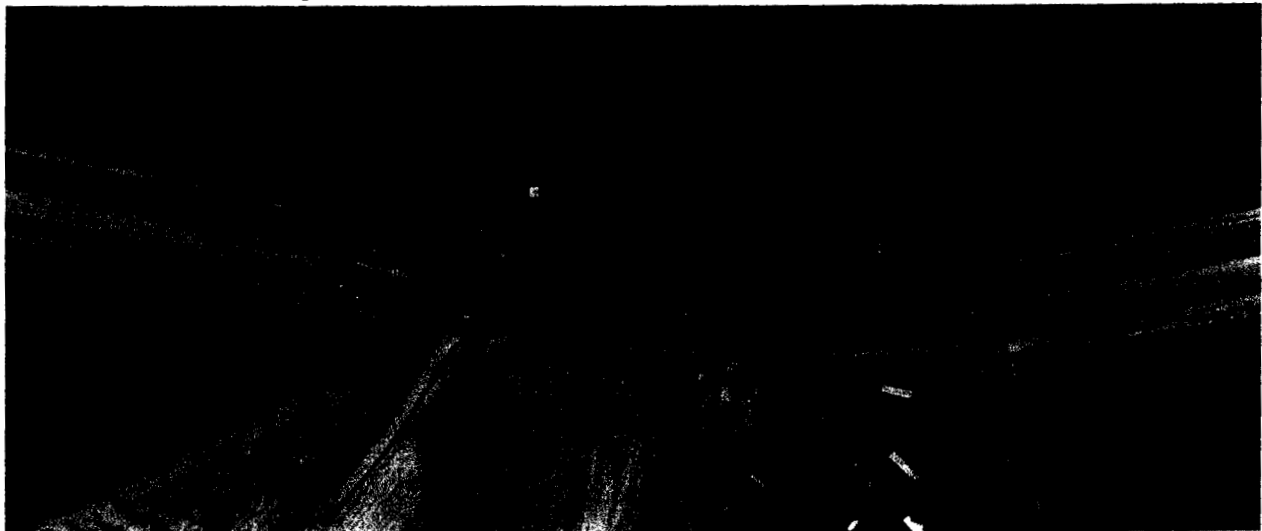
These concepts are illustrated on the above map, with upgrade of existing facilities shown in orange, and new construction sections shown in purple. These options are proposed as four lane expressways, which would include 2 lanes in each direction, separated by a median of 40 feet or more. Intersections with major roads would be upgrade to grade separated interchanges over time, and local intersections would be upgraded to superstreet design, or other modern arterial intersection designs suitable for rural environments.



Initially, these alternatives are proposed in more detail between SC 22 or Carolina Bays Highway and I-95, to be consistent with the current EIS. Each alternative is described in more detail in the following paragraphs.

***Route 501***

This route would require relatively minor upgrades from the existing expressway character of Routes 38 and 501, which provide a direct connection between Route 22 and I-95. Both Routes 501 and 38 are primarily 4 lanes with a median. The following aerial photographs show typical conditions on these corridors.

***Route 38 at Gun Swamp Road******US Route 501 at Zion Road***

Only modest improvements would be needed to upgrade this into a modern expressway, such as:

- Construct modern superstreet arterial intersections where needed.
- Conduct access management improvements in areas of frequent curb cuts.

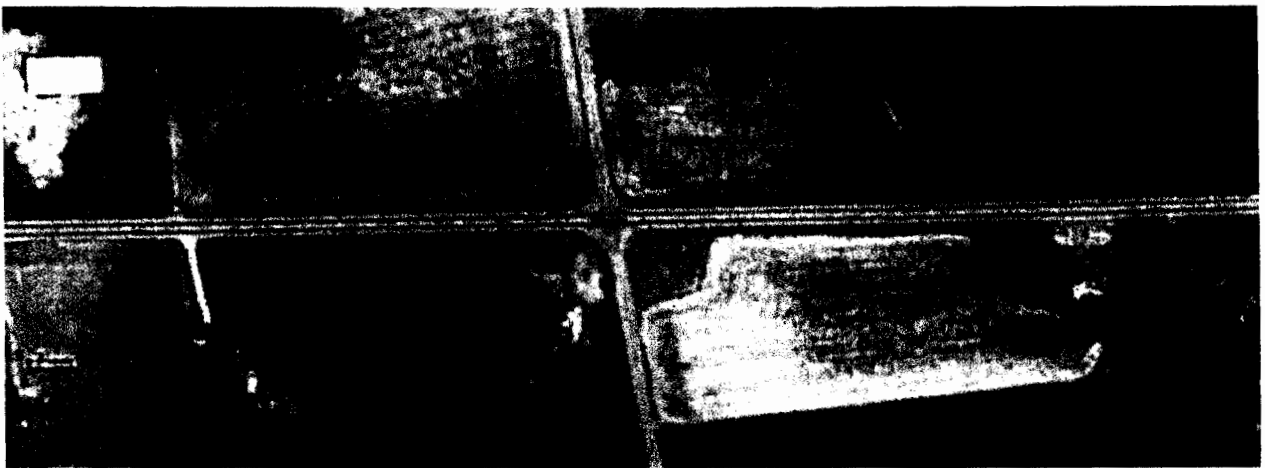
- Construct grade separated interchanges at high volume crossings if needed for traffic capacity.

This alternative would have by far the lowest cost and environmental impacts, and would benefit both local travelers as well as those headed to Myrtle Beach.

### ***Route 9***

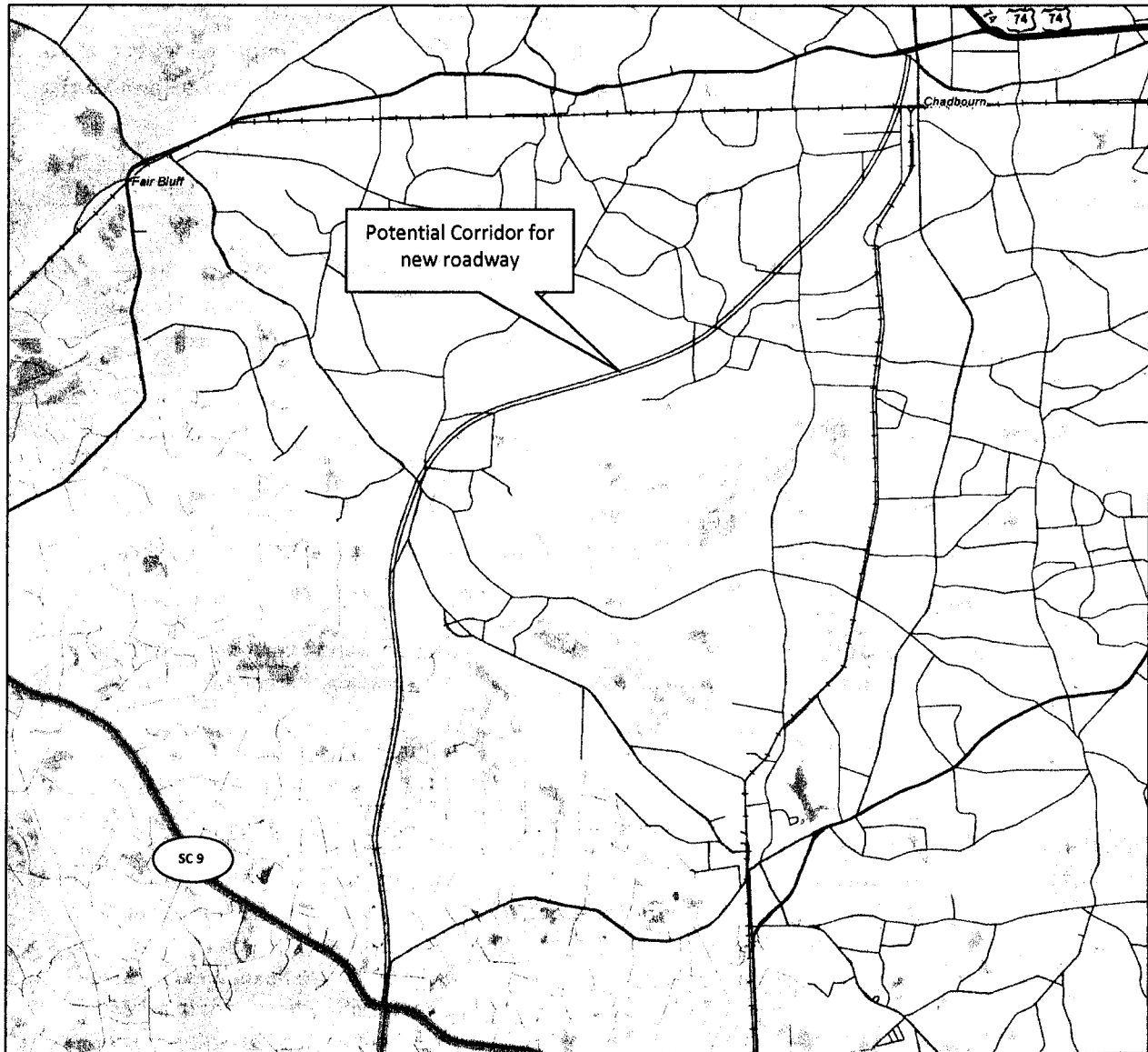
This option would require widening of about 60 miles of rural two lane roadway into an expressway. The path would generally follow SC Route 9, but could use local roads for bypass route around several communities, which could result in up to 8 miles of new expressway construction to avoid impacts to communities. The following aerial photograph shows typical conditions along the rural portions of Route 9.

### ***Route 9 at South Fordtown Road***



### ***NC Connector***

This route would connect the Route 74 corridor in North Carolina (currently a four lane US highway, and planned for upgrade to an interstate) with Route 22 through a combination of about 20 miles of new expressway construction and about 14 miles of upgrade of existing rural roadways. This would require the greatest length of new roadway construction, and therefore be the most costly alternative. The following map shows a potential route for a new alignment that would seek to avoid impacts to wetlands by selecting higher areas for the new roadway. Some of this route could be accomplished by upgrading minor local roadways.



### ***Transit Service***

Providing a transit alternative is also a long term goal of the project. AMTRAK service is currently provided to Florence. Transit connecting service could be provided between the AMTRAK station and Myrtle Beach, although any type of transit alternative would require a robust local transit system that would allow visitors to get around and enjoy the Myrtle Beach area without a car. The service would need to operate for extended hours of nights and weekends, and serve important tourist destinations in the area. New rail service directly to Myrtle Beach, while desirable, is unlikely to be a cost effective solution unless there are significant upgrades to local transit, and more emphasis on transit-oriented land use patterns.

***Comparative Features of the Alternatives for the Grand Strand Expressway***

The following table compares the approximate project lengths for the types of improvements that could be considered in as TSM alternatives for the portion of I-73 that is proposed between I-95 and Myrtle Beach.

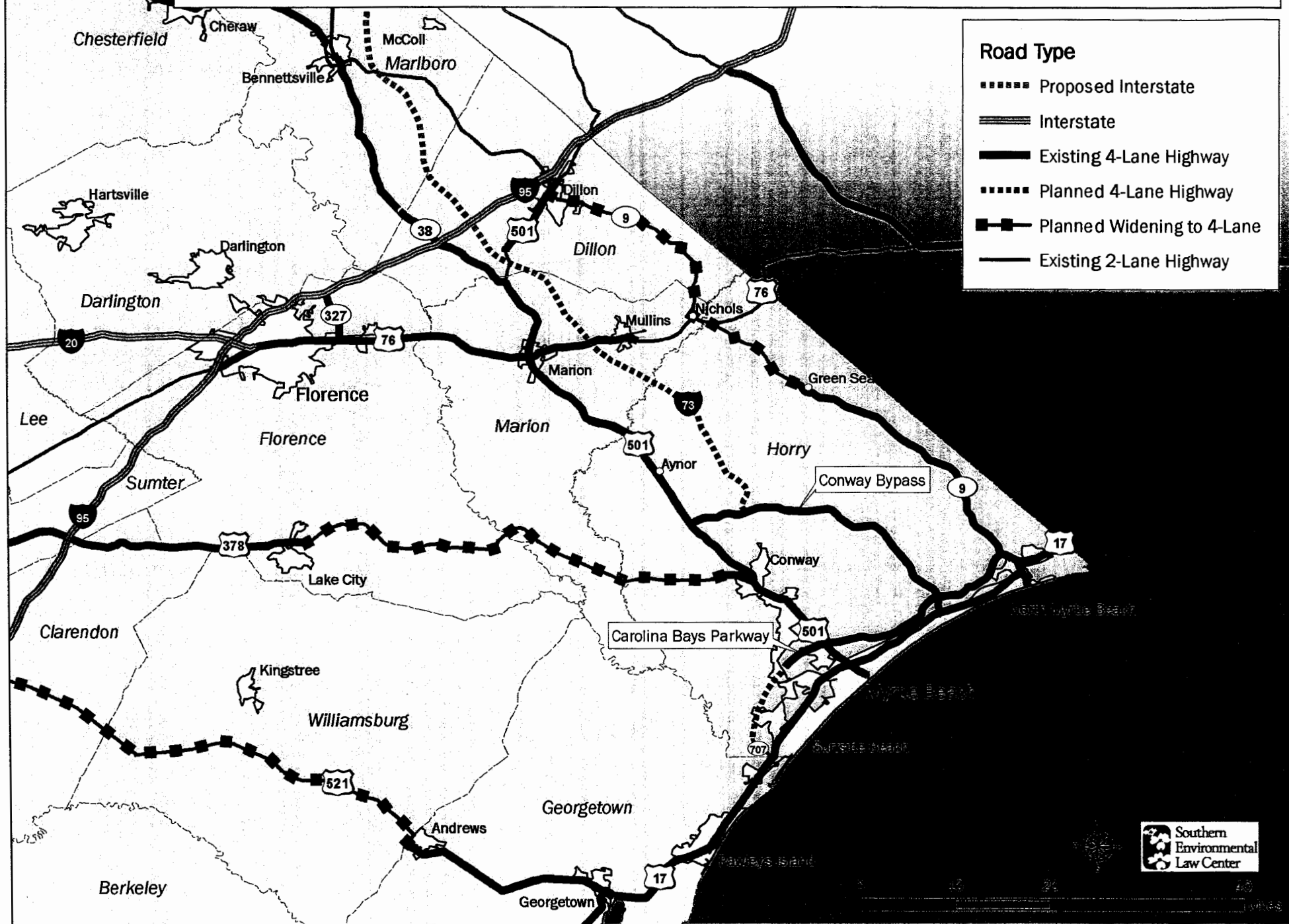
Length (miles +/-):	Route 501/38	Route 9	NC I-74 Route
Upgrade of four lane arterial to Expressway	42	0	0
Upgrade of two lane roadway to expressway	0	60	14
New Expressway Construction	0	8	20

***Compare Expressway Alternatives to Proposed I-73***

The table below compares the proposed I-73 with the conceptual alternatives for a Grand Strand Expressway.

	I-73 as Proposed in EIS	Grand Strand Expressway Alternatives
Design	New Interstate Highway 44 miles of new construction	Between # and # miles of new roadway
Right of way width	About 300 feet	About 100 feet right of way, which can be accommodated on most existing arterial corridors
Wetlands impacts	Inflexible and excessive interstate highway design criteria result in significant impacts to wetlands areas. Proposed alignment requires crossing of major wetlands and filling	Minimizes wetlands impacts by upgrading existing roadways, many of which need only minor upgrades, and minimizing need to cross wetland areas with new facilities. More flexible expressway design criteria will reduce impact areas where new roadway construction is required.
Posted Speed limit	65 mph	Varies; 45 to 65 mph
Cost		
Ability to phase construction	Limited; route will not operate effectively until entire corridor is complete	Route 501 option can easily be phased and will have utility as soon as first phase is constructed. NC and Route 9 options cannot be phased as easily due to limited capacity of existing roadway network

## Existing and Planned Route Improvement to Myrtle Beach Area



**SCDOT Environmental  
ACE Meeting**

**10:00am Thursday March 10, 2010  
SCDOT HEADQUARTERS  
COLUMBIA**

**COMMISSION ROOM (306)**

**AGENDA**

- 1. Introduction**
- 2. Old Business**
  - *Discuss in further detail four (4) upcoming Design Build projects (see attached)*
  - *MOU update*
- 3. APPR Update**
- 4. Discussion on NWP 3 / 14**
- 5. Discussion on SC 97 Bridge Replacement (Great Falls Highway) over Rocky Creek (Chester County) – Kimley-Horn and Associates (approx 10:30)**

*The existing SC 97 Bridge over Rocky Creek in Chester County (see attached maps) is structurally deficient and carries only two lanes of traffic. It will be replaced by building a new bridge on a new alignment to the north or south and will require the demolition of the existing bridge.*
- 6. AOB**
- 7. Next Meeting**
- 8. Adjourn**



19.1 *Adverse Impacts Table.*

FACTORS	OPTIONS								
Lost Type	Intermittent 1 <sup>st</sup> and 2 <sup>nd</sup> Order Streams 0.3						All Other Streams 0.8		
Priority Category	Tertiary 0.1			Secondary 0.3			Primary 0.5		
Existing Condition	Impaired.....Moderately Impaired.....Fully Functional 0.1                      0.75                      1.5								
Duration	Seasonal 0.05			0-1 Year 0.1			> 1 Year 0.3		
Dominant Impact	Shade/ Clear 0.05	Utility Crossing 0.15	Culvert  0.3	Armor  0.5	Deten- tion/Weir 0.75	Morpho- logic 1.5	Impound  2.0	Pipe  2.2	Fill  2.5
Cumulative Impact	$0.0005 \times \text{total linear feet of stream impacted } (\Sigma LLi)$								

## Required Mitigation Credits Sample Worksheet

<b>Factor</b>	<b>Pipe Intermittent</b>					
Lost Type	0.3					
Priority Category	0.1					
Existing Condition	0.1					
Duration	0.3					
Dominant Impact	2.2					
Cumulative Impact	0.1					
Sum of r Factors	R <sub>1</sub> = <b>3.1</b>	R <sub>2</sub> = <b>0.0</b>	R <sub>3</sub> = <b>0.0</b>	R <sub>4</sub> = <b>0</b>	R <sub>5</sub> = <b>0</b>	R <sub>6</sub> = <b>0</b>
Linear Feet Impact	LL <sub>1</sub> = <b>299</b>	LL <sub>2</sub> =	LL <sub>3</sub> =	LL <sub>4</sub> =	LL <sub>5</sub> =	LL <sub>6</sub> = <b>0</b>
R X LL	<b>926.9</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

**Total Required Credits =  $\sum (R \times LL) =$  927**

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19.1 *Adverse Impacts Table.*

<b>FACTORS</b>	<b>OPTIONS</b>								
Lost Type	Intermittent 1 <sup>st</sup> and 2 <sup>nd</sup> Order Streams 0.3						All Other Streams 0.8		
Priority Category	Tertiary 0.1			Secondary 0.3			Primary 0.5		
Existing Condition	Impaired.....Moderately Impaired.....Fully Functional 0.1                                  0.75                                  1.5								
Duration	Seasonal 0.05			0-1 Year 0.1			> 1 Year 0.3		
Dominant Impact	Shade/ Clear 0.05	Utility Crossing 0.15	Culvert  0.3	Armor  0.5	Detention/ Weir 0.75	Morpho- logic 1.5	Impound  2.0	Pipe  2.2	Fill  2.5
Cumulative Impact	0.0005 × total linear feet of stream impacted (Σ LLi)								

## Required Mitigation Credits Sample Worksheet

Factor	Culvert Intermittent	Pipe Intermittent	Culvert Perennial	Pipe Perennial		
Lost Type	0.3	0.3	0.8	0.8		
Priority Category	0.1	0.1	0.1	0.1		
Existing Condition	0.1	0.1	0.1	0.1		
Duration	0.3	0.3	0.3	0.3		
Dominant Impact	0.3	2.2	0.3	2.2		
Cumulative Impact	0.8	0.8	0.8	0.8		
Sum of r Factors	R <sub>1</sub> = 1.9	R <sub>2</sub> = 3.8	R <sub>3</sub> = 2.4	R <sub>4</sub> = 4.3	R <sub>5</sub> = 0.0	R <sub>6</sub> = 0.0
Linear Feet Impact	LL <sub>1</sub> = 153	LL <sub>2</sub> = 396	LL <sub>3</sub> = 72	LL <sub>4</sub> = 922	LL <sub>5</sub> =	LL <sub>6</sub> = 0
R X LL	290.7	1,504.8	172.8	3,964.6	0.0	0.0

**Total Required Credits =  $\sum (R \times LL) =$  5,933**

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19.1 *Adverse Impacts Table.*

<b>FACTORS</b>	<b>OPTIONS</b>								
Lost Type	Intermittent 1 <sup>st</sup> and 2 <sup>nd</sup> Order Streams 0.3						All Other Streams 0.8		
Priority Category	Tertiary 0.1			Secondary 0.3			Primary 0.5		
Existing Condition	Impaired.....Moderately Impaired.....Fully Functional 0.1                                  0.75                                  1.5								
Duration	Seasonal 0.05			0-1 Year 0.1			> 1 Year 0.3		
Dominant Impact	Shade/ Clear 0.05	Utility Crossing 0.15	Culvert  0.3	Armor  0.5	Detention/ Weir 0.75	Morpho- logic 1.5	Impound  2.0	Pipe  2.2	Fill  2.5
Cumulative Impact	0.0005 × total linear feet of stream impacted ( $\Sigma$ LLi)								

## Required Mitigation Credits Sample Worksheet

Factor	Pipe Perennial					
Lost Type	0.8					
Priority Category	0.1					
Existing Condition	0.1					
Duration	0.3					
Dominant Impact	2.2					
Cumulative Impact	0.4					
Sum of r Factors	R <sub>1</sub> = 3.9	R <sub>2</sub> = 0.0	R <sub>3</sub> = 0.0	R <sub>4</sub> = 0.0	R <sub>5</sub> = 0.0	R <sub>6</sub> = 0.0
Linear Feet Impact	LL <sub>1</sub> = 703	LL <sub>2</sub> =	LL <sub>3</sub> =	LL <sub>4</sub> =	LL <sub>5</sub> =	LL <sub>6</sub> = 0
R X LL	2,741.7	0.0	0.0	0.0	0.0	0.0

**Total Required Credits =  $\sum (R \times LL) =$  2,742**

19.1 *Adverse Impacts Table.*

<b>FACTORS</b>	<b>OPTIONS</b>								
Lost Type	Intermittent 1 <sup>st</sup> and 2 <sup>nd</sup> Order Streams 0.3						All Other Streams 0.8		
Priority Category	Tertiary 0.1			Secondary 0.3			Primary 0.5		
Existing Condition	Impaired.....Moderately Impaired.....Fully Functional 0.1                      0.75                      1.5								
Duration	Seasonal 0.05			0-1 Year 0.1			> 1 Year 0.3		
Dominant Impact	Shade/ Clear 0.05	Utility Crossing 0.15	Culvert  0.3	Armor  0.5	Detention/ Weir 0.75	Morpho- logic 1.5	Impound  2.0	Pipe  2.2	Fill  2.5
Cumulative Impact	0.0005 × total linear feet of stream impacted (Σ LLi)								

## Required Mitigation Credits Sample Worksheet

Factor	Pipe Perennial					
Lost Type	0.8					
Priority Category	0.1					
Existing Condition	0.1					
Duration	0.3					
Dominant Impact	2.2					
Cumulative Impact	0.2					
Sum of r Factors	R <sub>1</sub> = 3.7	R <sub>2</sub> = 0.0	R <sub>3</sub> = 0.0	R <sub>4</sub> = 0.0	R <sub>5</sub> = 0.0	R <sub>6</sub> = 0.0
Linear Feet Impact	LL <sub>1</sub> = 307	LL <sub>2</sub> =	LL <sub>3</sub> =	LL <sub>4</sub> =	LL <sub>5</sub> =	LL <sub>6</sub> = 0
R X LL	1,135.9	0.0	0.0	0.0	0.0	0.0

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19.1 *Adverse Impacts Table.*

<b>FACTORS</b>	<b>OPTIONS</b>								
Lost Type	Intermittent 1 <sup>st</sup> and 2 <sup>nd</sup> Order Streams 0.3						All Other Streams 0.8		
Priority Category	Tertiary 0.1			Secondary 0.3			Primary 0.5		
Existing Condition	Impaired.....Moderately Impaired.....Fully Functional 0.1                                  0.75                                  1.5								
Duration	Seasonal 0.05			0-1 Year 0.1			> 1 Year 0.3		
Dominant Impact	Shade/ Clear 0.05	Utility Crossing 0.15	Culvert  0.3	Armor  0.5	Detention/ Weir 0.75	Morpho- logic 1.5	Impound  2.0	Pipe  2.2	Fill  2.5
Cumulative Impact	0.0005 × total linear feet of stream impacted ( $\Sigma$ LLi)								

## Required Mitigation Credits Sample Worksheet

Factor	Culvert Intermittent	Pipe Intermittent	Pipe Perennial			
Lost Type	0.3	0.3	0.8			
Priority Category	0.1	0.1	0.1			
Existing Condition	0.1	0.1	0.1			
Duration	0.3	0.3	0.3			
Dominant Impact	0.3	2.2	2.2			
Cumulative Impact	0.9	0.9	0.9			
Sum of r Factors	R <sub>1</sub> = 2.0	R <sub>2</sub> = 3.9	R <sub>3</sub> = 4.4	R <sub>4</sub> = 0.0	R <sub>5</sub> = 0.0	R <sub>6</sub> = 0.0
Linear Feet Impact	LL <sub>1</sub> = 39	LL <sub>2</sub> = 609	LL <sub>3</sub> = 1143	LL <sub>4</sub> =	LL <sub>5</sub> =	LL <sub>6</sub> = 0
R X LL	78.0	2,375.1	5,029.2	0.0	0.0	0.0

**Total Required Credits =  $\sum (R \times LL) =$  7,482**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**BRUNSON SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	NJ Isolated Wetlands Fill	NJ Isolated Wetlands Clear	JD Bot Hard Wetland Fill	JD Bot Hard Wetland Clear			
Lost Type	2.0	2.0	3.0	3.0			
Priority Category	0.5	0.5	0.5	0.5			
Existing Condition	0.1	0.1	1.0	1.0			
Duration	2.0	2.0	2.0	2.0			
Dominant Impact	3.0	1.0	3.0	1.0			
Cumulative Impact	0.1	0.1	0.1	0.1			
Sum of r Factors	7.7	5.7	9.6	7.6			
Impacted Area	0.12	0.63	0.86	0.62			
R x AA	0.92	0.17	8.26	4.71			

Total Required Credits =  $\sum (R \times AA) =$  14.1

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**BUCK SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	NJ Bot Hard Wetland Fill	NJ Bot Hard Wetland T Clear	NJ Bot Hard Wetland Fill	NJ Bot Hard Wetland T Clear	NJ Bot Hard Wetland Excavate	NJ Pine Flatwood Fill	NJ Pine Flatwood Excavate
Lost Type	3.0	3.0	3.0	3.0	3.0	2.0	2.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	1.0	1.0	0.1	0.1	0.1	0.1	0.1
Duration	2.0	1.0	2.0	1.0	1.0	2.0	1.0
Dominant Impact	3.0	1.0	3.0	1.0	1.5	3.0	1.5
Cumulative Impact	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Sum of r Factors	11.9	8.9	11.0	8.0	8.5	10.0	7.5
Impacted Area	0.77	0.000	0.12	0.03	0.01	4.98	0.25
R x AA	9.16	0.00	1.32	0.24	0.09	49.80	1.88

Total Required Credits =  $\sum (R \times AA) =$

62.5

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**BUCK SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Bot Hardwood P Clear	JD Bot Hardwood Excav	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Bot Hardwood P Clear	JD Bot Hardwood Excav
Lost Type	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0
Duration	2.0	1.0	2.0	2.0	2.0	1.0	2.0	2.0
Dominant Impact	3.0	1.0	1.0	1.5	3.0	1.0	1.0	1.0
Cumulative Impact	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Sum of r Factors	11.9	8.9	9.9	10.4	12.9	9.9	10.9	10.9
Impacted Area	14.71	2.480	2.370	0.110	6.32	1.48	1.48	0.50
R x AA	175.05	22.07	23.46	1.14	81.53	14.65	16.13	5.45

Total Required Credits =  $\sum (R \times AA) =$  339.5

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**BUCK SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Bot Hardwood Excav	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Excav
Lost Type	3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	0.1	0.1	0.1	1.0	1.0	0.1	0.1	0.1
Duration	2.0	1.0	1.0	2.0	1.0	2.0	1.0	2.0
Dominant Impact	3.0	1.0	1.5	3.0	1.0	3.0	1.0	1.5
Cumulative Impact	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Sum of r Factors	11.0	8.0	8.5	10.9	7.9	10.0	7.0	8.5
Impacted Area	1.34	1.00	0.05	0.160	0.010	7.12	1.03	0.50
R x AA	14.74	8.00	0.43	1.09	0.08	71.20	7.18	4.25

Total Required Credits =  $\sum (R \times AA) = 107.0$

Grand Total **509**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**CATFISH CREEK WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	NJ Bot Hard Wetland Fill	NJ Bot Hard Wetland T Clear	NJ Bot Hard Wetland Excav	NJ Pine Flatwood Fill	NJ Pine Flatwood T Clear		
Lost Type	3.0	3.0	3.0	2.0	2.0		
Priority Category	0.5	0.5	0.5	0.5	0.5		
Existing Condition	0.1	0.1	0.1	0.1	0.1		
Duration	2.0	1.0	1.0	2.0	1.0		
Dominant Impact	3.0	1.0	1.5	3.0	1.0		
Cumulative Impact	0.7	0.7	0.7	0.7	0.7		
Sum of r Factors	9.3	6.3	6.8	8.3	5.3		
Impacted Area	0.31	0.040	0.040	1.30	0.01		
R x AA	2.88	0.25	0.27	10.79	0.05		

Total Required Credits =  $\sum (R \times AA) =$  14.3

**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**CATFISH CREEK WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hard Wetland Fill	JD Bot Hard Wetland T Clear	JD Bot Hard Wetland Excav	JD Bot Hard Wetland Fill	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Ponds Fill
Lost Type	3.0	3.0	3.0	3.0	2.0	2.0	0.2
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	1.0	1.0	1.0	0.1	0.1	0.1	0.1
Duration	2.0	1.0	2.0	2.0	2.0	1.0	2.0
Dominant Impact	3.0	1.0	1.5	3.0	3.0	1.0	3.0
Cumulative Impact	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Sum of r Factors	10.2	7.2	8.7	9.3	8.3	5.3	6.5
Impacted Area	8.27	2.220	0.530	0.56	0.02	0.01	0.330
R x AA	84.35	15.98	4.61	5.21	0.18	0.05	2.15

Total Required Credits =  $\sum (R \times AA) =$  **112.5**

**Grand Total 123.7**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**CROOKED CREEK WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Ponds Fill	JD Bot Hard Wetland Fill	JD Bot Hard Wetland T Clear	JD Bot Hard Wetland P Clear			
Lost Type	0.2	3.0	3.0	3.0			
Priority Category	0.5	0.5	0.5	0.5			
Existing Condition	0.1	1.0	1.0	1.0			
Duration	2.0	2.0	2.0	2.0			
Dominant Impact	3.0	3.0	1.0	1.0			
Cumulative Impact	0.4	0.4	0.4	0.4			
Sum of r Factors	6.2	9.9	6.9	7.9			
Impacted Area	0.001	8.02	0.45	0.19			
R x AA	0.006	79.40	3.11	1.50			

Total Required Credits =  $\sum (R \times AA) =$  84.0



**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**KINGSTON LAKE WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	NJ Pine Flatwood Fill	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Excav	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	
Lost Type	2.0	2.0	2.0	2.0	2.0	2.0	
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	
Existing Condition	1.0	1.0	1.0	1.0	0.1	0.1	
Duration	2.0	2.0	1.0	2.0	2.0	1.0	
Dominant Impact	3.0	3.0	1.0	1.5	3.0	1.0	
Cumulative Impact	2.0	2.0	2.0	2.0	2.0	2.0	
Sum of r Factors	10.5	10.5	7.5	9.0	9.6	6.6	
Impacted Area	0.56	19.22	18.18	0.91	1.22	0.20	
R x AA	5.88	201.81	136.35	8.19	11.71	1.32	

Total Required Credits =  $\sum (R \times AA) =$

365.3

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# I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS

## LAKE SWAMP WATERSHED

### Mitigation for Wetlands

#### 14. Tables and Worksheets.

##### 14.1 Adverse Impacts Table.

#### ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1	Impaired 1.0		Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

#### Required Mitigation Credits Sample Worksheet

Factor	NJ Bot Hardwood Wetland Fill	NJ Bot Hardwood Wetland T Clear	NJ Pine Flatwood T Clear	NJ Pine Flatwood Fill	NJ Pine Flatwood T Clear	
Lost Type	3.0	3.0	2.0	2.0	2.0	
Priority Category	0.5	0.5	0.5	0.5	0.5	
Existing Condition	0.1	0.1	1.0	0.1	0.1	
Duration	2.0	1.0	1.0	2.0	1.0	
Dominant Impact	3.0	1.0	1.0	2.0	1.0	
Cumulative Impact	6.4	5.4	6.4	5.4	6.4	
Sum of r Factors	15.0	12.0	11.9	13.0	11.0	
Impacted Area	0.70	0.04	0.00	0.81	0.04	
R x AA	10.50	0.48	0.00	10.53	0.44	

Total Required Credits =  $\sum (R \times AA) =$

22.0

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**LAKE SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear	JD Bot Hardwood Wetland P Clear	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear	JD Bot Hardwood Wetland P Clear	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear
Lost Type	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	1.0	1.0	1.0	2.0	2.0	2.0	0.1	0.1
Duration	2.0	1.0	2.0	2.0	1.0	2.0	2.0	1.0
Dominant Impact	3.0	1.0	1.0	3.0	1.0	1.0	3.0	1.0
Cumulative Impact	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Sum of r Factors	15.9	12.9	13.9	16.9	15.9	14.9	15.0	12.0
Impacted Area	27.05	3.24	1.55	15.88	0.71	0.95	2.44	1.26
R x AA	430.10	41.80	21.55	268.37	23.77	14.16	36.60	15.12

Total Required Credits =  $\sum (R \times AA) =$  851.5

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**LAKE SWAMP WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Wetland P Clear	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Excav	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Excav
Lost Type	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	0.1	1.0	1.0	1.0	0.1	0.1	0.1
Duration	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Dominant Impact	1.0	3.0	1.0	1.5	3.0	1.0	1.5
Cumulative Impact	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Sum of r Factors	13.0	14.9	11.9	13.4	14.0	11.0	12.5
Impacted Area	0.09	36.28	6.12	0.35	24.88	3.31	1.01
R x AA	1.17	540.57	72.83	4.69	348.32	36.41	12.63

Total Required Credits =  $\sum (R \times AA) =$

1,016.62

**Grand Total 1,890.12**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**LITTLE PEE DEE RIVER WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	NJ Bot Hardwood Wetland Fill	NJ Bot Hardwood Wetland T Clear	NJ Pine Flatwood Fill			
Lost Type	3.0	3.0	2.0			
Priority Category	0.5	0.5	2.0			
Existing Condition	1.0	1.0	1.0			
Duration	2.0	1.0	1.0			
Dominant Impact	3.0	1.0	2.0			
Cumulative Impact	4.0	4.0	4.0			
Sum of r Factors	13.5	10.5	13.0			
Impacted Area	1.77	0.62	0.62			
R x AA	23.90	1.26	8.06			

Total Required Credits =  $\sum (R \times AA) =$  33.2

**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**LITTLE PEE DEE RIVER WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear	JD Bot Hardwood Wetland P Clear	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear	JD Bot Hardwood Wetland Fill	JD Bot Hardwood Wetland T Clear	JD Bot Hardwood Wetland Fill
Lost Type	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Priority Category	2.0	2.0	2.0	2.0	2.0	0.5	0.5	0.5
Existing Condition	2.0	2.0	2.0	0.1	0.1	1.0	1.0	2.0
Duration	2.0	1.0	2.0	2.0	1.0	2.0	1.0	2.0
Dominant Impact	3.0	1.0	1.0	3.0	1.0	3.0	1.0	3.0
Cumulative Impact	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Sum of r Factors	16.0	12.0	14.0	14.1	11.1	13.5	10.5	14.5
Impacted Area	3.64	0.26	9.53	0.10	0.2	0.79	0.05	28.54
R x AA	58.24	3.38	7.84	1.41	0.22	9.45	0.53	413.83

Total Required Credits =  $\sum (R \times AA) =$  494.9

**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**LITTLE PEE DEE RIVER WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1	Impaired 1.0		Slightly Impaired 2.0	Fully Functional 2.5	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood T Clear	JD Bot Hardwood P Clear	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Fill
Lost Type	3.0	3.0	3.0	3.0	2.0	2.0	2.0
Priority Category	0.5	0.5	0.5	0.5	2.0	2.0	2.0
Existing Condition	2.0	2.0	0.1	0.1	1.0	1.0	0.1
Duration	1.0	2.0	2.0	1.0	2.0	1.0	2.0
Dominant Impact	3.0	1.0	1.0	1.0	3.0	1.0	3.0
Cumulative Impact	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Sum of r Factors	13.5	13.5	12.0	9.6	14.0	11.0	13.1
Impacted Area	1.88	3.65	2.06	0.17	2.53	0.13	0.07
R x AA	25.38	45.75	25.96	1.63	35.42	1.43	0.92

Total Required Credits =  $\sum (R \times AA) =$

**136.5**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS CON'T**  
**LITTLE PEE DEE RIVER WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood Fill	JD Pine Flatwood T Clear		
Lost Type	2.0	2.0	2.0	2.0		
Priority Category	0.5	0.5	0.5	0.5		
Existing Condition	1.0	1.0	0.1	0.1		
Duration	2.0	1.0	2.0	1.0		
Dominant Impact	3.0	1.0	3.0	1.0		
Cumulative Impact	4.0	4.0	4.0	4.0		
Sum of r Factors	12.5	9.5	11.5	8.6		
Impacted Area	0.65	0.05	29.37	0.52		
R x AA	8.13	0.48	340.69	13.07		

Total Required Credits =  $a(R \times AA) =$

352.4

**Grand Total 1,027.0**

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**THREE CREEKS WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 0.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0		Slightly Impaired 2.0	
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Bot Hardwood P Clear	JD Bot Hardwood P Clear	JD Bot Hardwood Fill	JD Bot Hardwood T Clear	JD Pine Flatwood Fill	JD Pine Flatwood T Clear	JD Pine Flatwood P Clear
Lost Type	3.0	0.0	3.0	3.0	3.0	3.0	2.0	2.0	2.0
Priority Category	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Existing Condition	1.0	1.0	1.0	1.0	0.1	0.1	0.1	0.1	0.1
Duration	2.0	1.0	2.0	2.0	2.0	2.0	2.0	1.0	2.0
Dominant Impact	3.0	1.0	1.0	1.0	3.0	1.0	3.0	1.0	1.0
Cumulative Impact	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Sum of r Factors	10.5	4.5	8.5	8.5	9.6	6.6	8.6	5.6	6.6
Impacted Area	8.21	0.65	2.56	0.74	0.004	0.016	2.73	1.25	3.64
R x AA	86.21	6.38	21.93	1.26	0.04	0.07	23.48	1.57	24.02

Total Required Credits =  $\sum (R \times AA) =$  164.9

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**I-73 JURISDICTIONAL WETLANDS AND WATERS FILL IMPACTS**  
**UPPER LITTLE PEE DEE RIVER WATERSHED**  
**Mitigation for Wetlands**

**14. Tables and Worksheets.**

**14.1 Adverse Impacts Table.**

**ADVERSE IMPACT FACTORS FOR WETLANDS AND OTHER WATERS OF THE U.S. EXCLUDING STREAMS**

Factors	Options					
Lost Type	Type C 2.2		Type B 2.0		Type A 3.0	
Priority Category	Tertiary 0.5		Secondary 1.5		Primary 2.0	
Existing Conditions	Very Impaired 0.1		Impaired 1.0	Slightly Impaired 2.0		Fully Functional 2.5
Duration	Seasonal 0.1	0 to 1 0.2	1 to 3 0.5	3 to 5 1.0	5 to 10 1.5	Over 10 2.0
Dominant Impact	Shade 0.2	Clear 1.0	Dredge 1.5	Drain 2.0	Impound 2.5	Fill 3.0
Cumulative Impact	$0.05 \times \sum AA_i$					

**Note:** For the Cumulative Impact factor,  $\sum AA_i$  stands for the sum of the acres of adverse impacts to aquatic areas for the overall project. When computing this value, round to the nearest tenth decimal place using even number rounding. Thus 0.01 and 0.050 are rounded down to give a value of zero while 0.051 and 0.09 are rounded up to give 0.1 as the value for the cumulative impact factor. **The cumulative impact factor for the overall project must be used in each area column on the Required Mitigation Credits Worksheet below.**

**Required Mitigation Credits Sample Worksheet**

Factor	JD Bot Hardwood Fill	JD Bot Hardwood Clear				
Lost Type	3.0	3.0				
Priority Category	0.5	0.5				
Existing Condition	1.0	1.0				
Duration	2.0	1.0				
Dominant Impact	3.0	1.0				
Cumulative Impact	0.0	0.0				
Sum of r Factors	9.5	6.5				
Impacted Area	0.0001	0.001				
R x AA	0.001	0.0065				

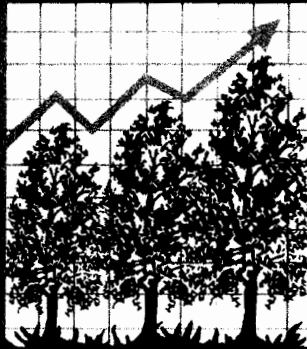
Total Required Credits =  $\sum (R \times AA) =$

**0.0075**

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# EBX



Capital • Experience • Expertise

**I-73 Southern & Northern Corridor in South Carolina  
Conceptual Mitigation Plan Proposal**

**Prepared For**

**LPA, Inc. & SCDOT**

**August, 2010**

**Randy Wilgis**

**Environmental Banc & Exchange, LLC**

**Camden, SC**



***I-73 Southern & Northern Corridor in South Carolina  
Conceptual Mitigation Plan Proposal***

2

*August 26, 2010*

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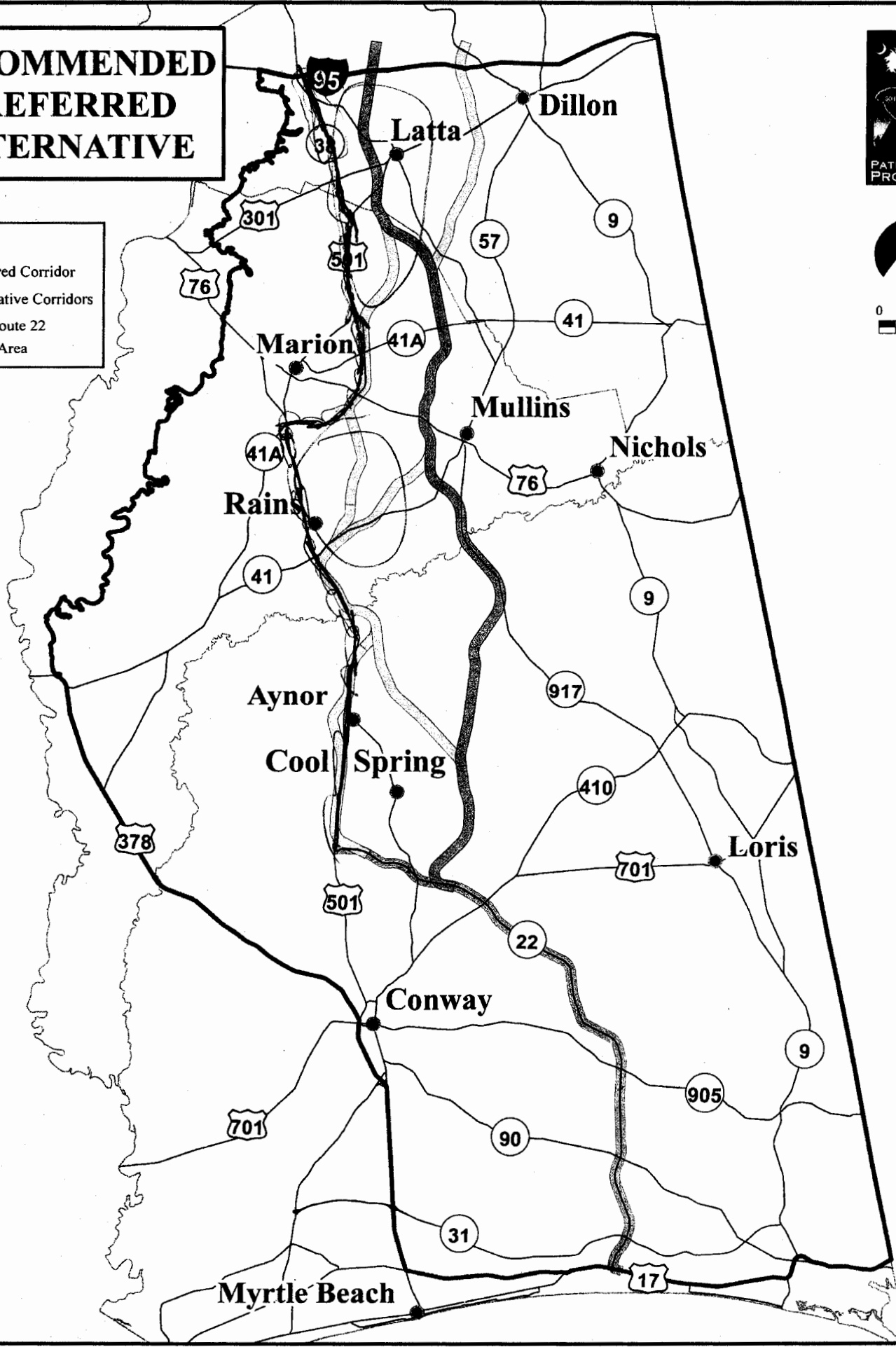
- 4.1 Representative Projects
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# RECOMMENDED PREFERRED ALTERNATIVE

## Legend

-  Preferred Corridor
-  Alternative Corridors
-  S.C. Route 22
-  Study Area









## CHAPTER 2 – DEVELOPMENT OF ALTERNATIVES

### 2.1 How were the Potential Alternatives Developed?

Alternative Evaluation Criteria were developed to define and prioritize the issues of concern during alternative development. The issues covered by the Alternative Evaluation Criteria were evaluated at different levels of detail over the course of the process, beginning at a very broad level and ending with more detailed evaluations. The primary and secondary needs of the project provided the initial guidelines for establishing the Alternative Evaluation Criteria. Categories of potential impacts were then added to the criteria. Utilizing the criteria would ensure that alternatives were developed that satisfy the project purpose and need, while at the same time attempt to conserve the natural environment, community values, and cultural resources by minimizing impacts to the natural and human environment. The Alternative Evaluation Criteria are detailed in the *Alternative Development Technical Memorandum* and include:

- Purpose and Need;
- Engineering criteria and constructability;
- Economics;
- Existing and future development;
- Indirect and cumulative impacts;
- Current and future land use;
- Traffic;
- Construction cost;
- Environmental factors;
- Socioeconomic issues;
- Infrastructure;
- Utility impacts;
- Use of existing transportation infrastructure; and,
- Toll Feasibility/Financial Feasibility.

The No-build Alternative is one of the alternatives under consideration in the NEPA Process. As its name indicates, it is the null alternative which evaluates the no construction option. This alternative allows the evaluation of the project study area in its current condition without potential impacts related to construction and operation of the proposed project. The No-build Alternative establishes a baseline of environmental and socioeconomic conditions against which all Build Alternatives can be compared.

Next, a computer model utilizing Geographic Information System (GIS) data was created to develop potential alignments. The Corridor Analysis Tool (CAT) is a computer program that allowed GIS data to be analyzed in a short period of time, allowing more time to be spent on interpretation, discussion, and comparison of potential corridors.

The CAT developed corridors through weighting the values that were assigned through interagency coordination, (refer to Section 2.1.1, page 5) for socioeconomic, engineering, environmental, and infrastructure resources in the project study area. The CAT uses a grid- or cell-based format. The program finds the corridor of least impact between the endpoints of each alignment (starting and ending points) and summarizes the impacts for each alignment corridor. The endpoints are set and the program developed a “least impact” line that connects the two points. Surrounding this line is a “suitability grid” that illustrates areas that are close to the best fit line and that are within a designated percentage (1 to 2 percent) of the least impact line. To ensure that the alignment would be functional as a roadway, the “least impact” line was adapted to accommodate a 75-mile per hour design speed using basic



design criteria. A more detailed explanation of how the CAT program operates can be found in the *GIS and Data Collection Activities Technical Memorandum*.

Multiple government agencies were identified as possible sources of GIS data and five information categories were identified that would be necessary to include in the CAT program. These categories were identified as socioeconomic/demographic, engineering, environmental, infrastructure, and physical/cultural. Reference materials were also obtained that validated the GIS data.

Numerous federal, state, and local agencies along with non-governmental organizations were contacted for their available GIS data (refer to Table 2.1, page 2-3). Approximately 877 GIS data layers and 482 tiles of aerial photography were collected from 21 sources. A detailed list of the data layers including the supplying agency, data coordinate system, date of publication, and date of receipt can be found in the *GIS and Data Collection Activities Technical Memorandum*.

Approximately 52 GIS layers were determined to be complete and accurate for possible inclusion in the CAT program (refer to Table 2.2, page 2-4).

The 52 potential data layers were organized into four categories entitled environmental, roadways, infrastructure, and demographic/socioeconomic. Each feature within the 52 potential data layers utilized by the CAT was assigned a numerical value, on a scale of one to ten (ten representing the most valuable, refer to Appendix B).

Some of the GIS features were designated as constraints, which meant the feature was removed from consideration by the CAT when generating alternative corridors. A potential alignment should not pass through a feature designated as a constraint. The following layers were designated as constraints:

- Intact Carolina bays;
- Mitigation Banks and Sites;
- Known Federal Threatened and Endangered Species Locations;
- Known State Threatened and Endangered Species Locations;
- Archaeology Sites Potentially Eligible, Eligible, or Listed on National Register of Historic Places;
- Historic Resources Potentially Eligible, Eligible, or Listed on National Register of Historic Places;
- SCDNR Heritage Preserves;
- Publicly-owned Parks (Federal, State, and Local);
- Hazardous Sites Listed on NPS/SPL;
- Landfills;
- Mines/Geologic Features;
- Airports;
- Schools; and,
- Cemeteries.

[illegible]

In addition, each state and federal resource and regulatory agency was given the opportunity to manually draw alternatives on a map. The impacts for these alternatives, along with those for the segments generated by the CAT, were then quantified. Overall, the CAT developed approximately 63 preliminary



**Table 2.2**  
**Possible GIS Layers for CAT Program**  
**Interstate 73 EIS: I-95 to the Myrtle Beach Region**

Layer
<b>ENVIRONMENTAL</b>
National Wetland Inventory Mapping (Wetlands and Uplands)
Little Pee Dee River in Dillon County
Soils
Mitigation Banks and Sites
Species of Concern
Federal and State Threatened and Endangered Species
Archaeology Sites
Historic Resources (Architectural)
National Historic Register Sites
Heritage Preserves
Parks (federal, state, and local)
Wildlife Refuges
Federal Lands (Over 640 acres)
Land Stewardship
Hazardous Sites
Landfills
NPDES Sites
Streams/Rivers/Lakes
Streams/Rivers/Lakes-Special Designation
Watersheds
Floodplain for Great Pee Dee River
Floodplains
Land cover
Mines/Geologic Features
<b>ROADWAYS</b>
Roads (Urban and Rural)
<b>INFRASTRUCTURE</b>
Railroads
Transmission Lines
Oil Pipelines
Bridges
Airports
Buildings (Industrial Vacant)
Dams (Hazardous)
Fire Stations
Administrative Buildings (Government)
Churches
Community Facilities
Health Facilities
Hospitals
Libraries
Mental Health Facilities
Schools
Cemeteries
Incorporated Areas
Municipalities
Sewer Infrastructure
Pipelines
Treatment Plants
Surface Withdrawal Locations
Storage Sites
<b>DEMOGRAPHIC/SOCIOECONOMIC</b>
Minority Areas/Density
Low Income Areas/Density
Population Density



build segments, which were combined to form 141 possible preliminary Build Alternatives (refer to Figure 2-1, page 2-7). The impacts were quantified for each of the 141 preliminary Build Alternatives and are summarized in the *Alternative Development Technical Memorandum*. In addition, a sensitivity test was performed on the CAT program to verify that the values for features used by the CAT to select paths were minimizing potential impacts to the environment (refer to the *Alternative Development Technical Memorandum* for more details).

### 2.1.1 What is the Agency Coordination Team and what was their role in developing alternatives?

The Agency Coordination Team (ACT) consisted of representatives from:

- Federal Highway Administration (FHWA);
- U.S. Army Corps of Engineers (USACE);
- U.S. Coast Guard (USCG);
- U.S. Environmental Protection Agency (USEPA);
- U.S. Department of Agriculture - Natural Resource Conservation Service (NRCS);
- U.S. Fish and Wildlife Service (USFWS);
- NOAA Fisheries (NOAA-NMFS);
- S.C. Department of Archives and History (SCDAH);
- S.C. Department of Commerce (SCDOC)
- S.C. Emergency Management Division (SCEMD);
- S.C. Department of Health and Environmental Control (SCDHEC);
- S.C. Department of Health and Environmental Control – Office of Ocean and Coastal Resource Management (SCDHEC-OCRM);
- S.C. Department of Natural Resources (SCDNR);
- S.C. Department of Transportation (SCDOT); and,
- S.C. Department of Parks, Recreation, and Tourism (SCPRT).

The purpose of the ACT was to help merge the NEPA and Section 404 (wetland) permitting process and to offer multiple opportunities for the agencies to be involved in the development of the project. These opportunities were spread throughout the EIS development process and included agency participation in the determination of the study area boundaries, purpose and need and analysis criteria, development of alternatives, selection of alternatives for further study, Preferred Alternative, mitigation of unavoidable impacts, and project design features. For more detailed information about the ACT, please refer to Chapter 4.



The agencies provided information pertinent to their particular areas of expertise throughout the EIS process. The ACT participated in the determination of the data layers used by the CAT. They also provided input on the features designated as constraints. ACT members assigned numerical values, on a scale of one to ten, to each feature in each data layer utilized by the CAT. They also set the weighting



for the layers. In addition, each agency was given the opportunity to draw alternatives on a map of the study area. The alternatives were then quantified using the CAT and the results provided to the ACT, along with the results from other segments generated by the CAT.

A field visit was conducted in May 2005 with the ACT to review areas of special interest to ACT members. Agency comments and data collected from the field visit were also used to modify the alternatives and to develop the indirect and cumulative impact analysis. To date, the ACT members have met a total of 18 times over the past 23 months.

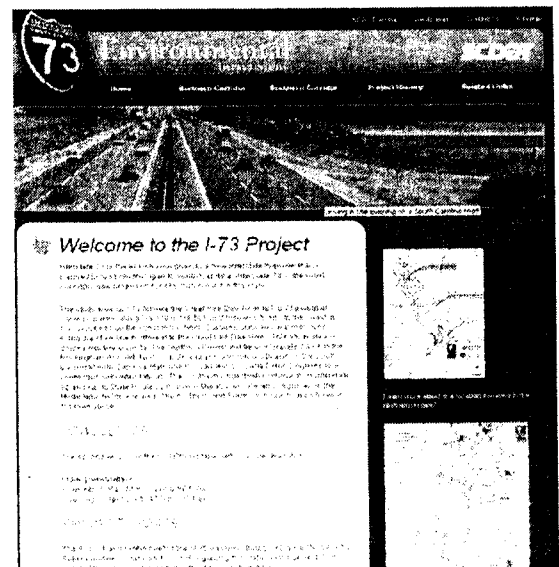
### 2.1.2 How was the public involved in developing the preliminary Build Alternatives?

The public had opportunities for commenting on the project through scoping and information meetings, a telephone hotline, and a project website. Additional community information meetings were also held throughout the project study area in an effort to reach out to minority residents. Comments and recommendations that were gathered through coordination with the Stakeholder Working Group and the public were reviewed and taken into consideration during alternative development. Please refer to Chapter 4 for a detailed discussion of the public involvement process.

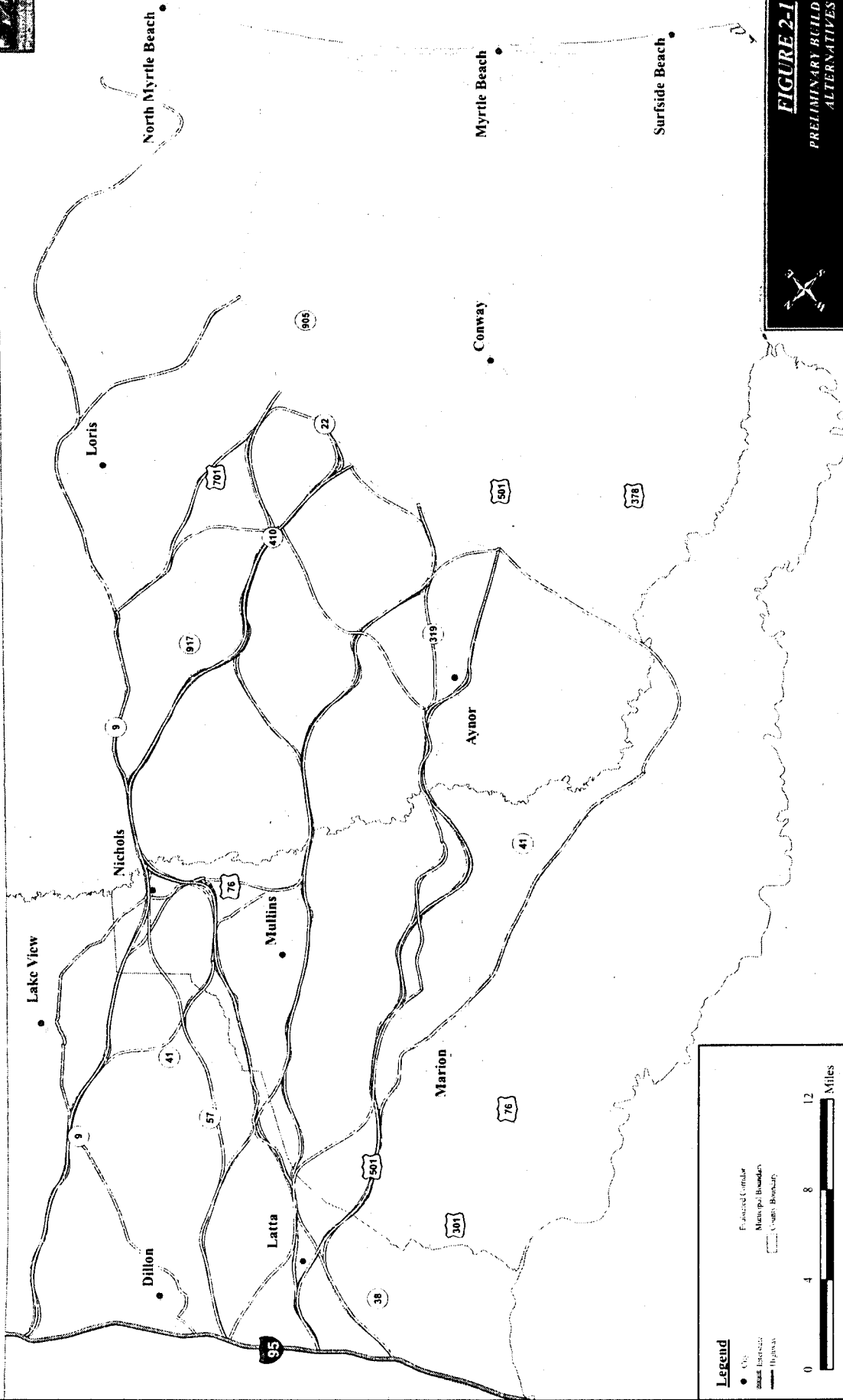


A Stakeholder Working Group was organized to create a forum for discussion with, transfer of information to, and to receive feedback from a diverse group of constituent representatives potentially impacted by the proposed project. Stakeholders were engaged in a series of meetings throughout the process and provided perspectives that represented the diverse demographics of the study area and various organizations and interest groups.

A project website was developed and updated periodically with new information and upcoming meeting times and locations. In addition, a toll-free telephone hotline was established for citizens without internet access to receive project updates and find out about upcoming meeting times and locations. The website and telephone hotline also allowed citizens to provide comments via email or in a recorded format, respectively. Furthermore, a project newsletter was available on the project website.









Public Scoping Meetings were held at two locations at the initiation of the project. The scoping meetings were an informal, drop-in style format that allowed citizens to ask questions and receive information on an individual basis. A survey of issues, a comment card, and an informational brochure were distributed to each attendee. The informational brochure included a brief description of the project, the official website address, and the toll-free hotline number. The information comments received from the public were used to help develop the project purpose and need and the initial alternatives.

## **2.2 How were the 141 preliminary Build Alternatives evaluated?**

The Alternative Evaluation Criteria were used to compare the 141 preliminary Build Alternatives that could be created by different combinations of segments (refer to Figure 2-1, page 2-7). The alternatives were first screened using the Purpose and Need. The primary needs of system linkage and economic development were used as the first level of screening. For the project need to be fulfilled, the alternatives had to improve national and regional connectivity by providing a direct link between I-95 and the Myrtle Beach region, as well as enhance economic opportunities and tourism in South Carolina. Approximately seven preliminary Build Alternatives were eliminated for failure to satisfy these primary needs.

The secondary needs of the project were identified as hurricane evacuation, relief of local traffic congestion, and multimodal planning. It was determined that secondary needs of the project would be met indirectly by alternatives when the primary needs are fulfilled. Any Build Alternative would facilitate more effective evacuation of the Myrtle Beach region during emergencies, should reduce existing traffic congestion on roads accessing the Myrtle Beach region, and would help future provision of a multimodal facility within the interstate corridor. No preliminary Build Alternatives were eliminated due to failure to meet the secondary needs of the project.

The preliminary Build Alternatives were next evaluated against the potential impacts to the natural environment. A 600-foot corridor was initially used to quantify impacts because the typical section, as described previously in Chapter One (Section 1.2.2, page 1-2), had not been established when the preliminary Build Alternatives were developed by the CAT program. The 600-foot corridor was used because it was anticipated to provide adequate width to accommodate the proposed facility. Constraints were not impacted by any of the 141 preliminary Build Alternatives developed by the CAT. The following impacts were quantified by the CAT and compared in an effort to reduce the number of preliminary build alternative segments:

- Wetland acreage (classified as previously impacted or not impacted);
- Wetland value (determined by ACT-assigned valuation times acreage impacted);
- Upland acreage (total acreage);
- Species of concern;
- Infrastructure (i.e. churches or fire stations); and,
- Corridor length/cost (corridor length was used to estimate potential cost).



A detailed matrix of the segment impacts was completed. Competing segments, those that had the same start and endpoints, were compared and the segments with the highest impacts were eliminated. This resulted in reducing the number of preliminary Build Alternatives from 134 to 25.

### **2.3 How were the Reasonable Alternatives developed?**

A summary of the process, including information for each of the 63 preliminary build segments, the 141 preliminary Build Alternatives, how segments were eliminated, and the information on the remaining 25 preliminary Build Alternatives was presented to the ACT for their consideration (refer to Figure 2-2, page 2-10). The Project Team made recommendations as to the Reasonable Alternatives to be carried forward and evaluated in more detail. After extensive discussion and evaluation at the December 9, 2004 ACT meeting, the ACT reached a consensus on designating seven of the 25 as Reasonable Alternatives for further study. The reasons that some of the alternatives were eliminated are detailed in the *Alternative Development Technical Memorandum*.

#### ***2.3.1 How was the public involved in developing the Reasonable Alternatives?***

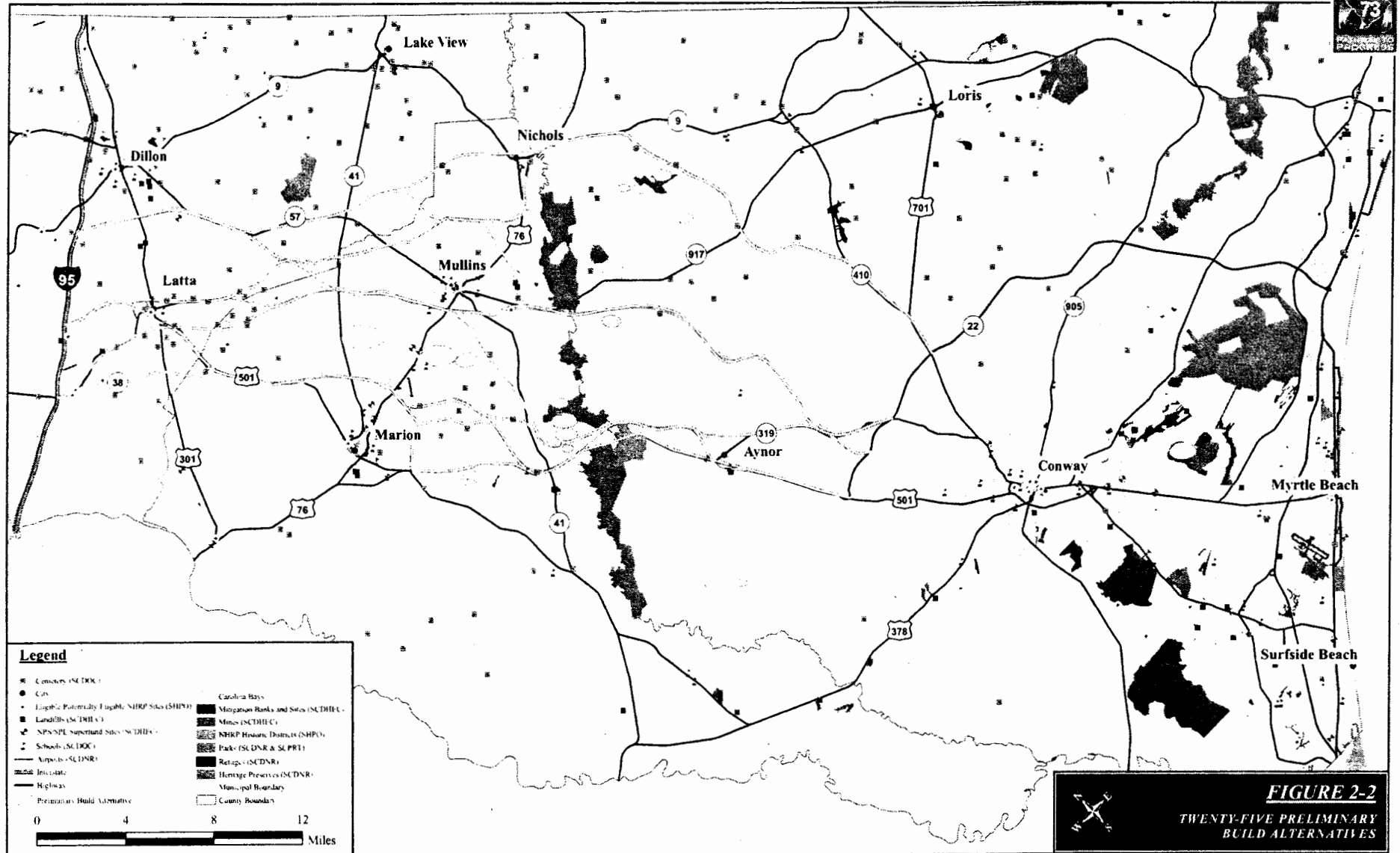
Following the designation of the seven Reasonable Alternatives by the ACT, the corridors were presented to the public for review and comment. Four public information meetings were held to present the Reasonable Alternatives. A public information meeting was held in each of the three counties within the project study area, with two held in Horry County (please refer to Chapter 4, Section 4.1.3, page 4-2, for a detailed discussion). Overall, approximately 1,259 people attended the public information meetings, and approximately 1,023 comments were received as a result of the four public information meetings. Each written comment was reviewed, and the written and the verbal comments heard at each of the public involvement meetings were used to re-evaluate the proposed alternatives. Modifications were made to the presented Reasonable Alternatives that reflect many of the comments. Some additional alternatives were also developed and evaluated as a result of comments received.

In addition to the public information meetings, community presentations were made to reach out to interested citizens from the study area. These meetings served to disseminate information about the project and gather input at the local and community level as to what was important about the project. Approximately 17 community presentations were made to 267 people.

#### ***2.3.2 What modifications were made to the Reasonable Alternatives based on input?***

Public and agency input resulted in the modification of alternatives to move away from communities such as Aynor, Cool Spring, Floydale, Galivants Ferry, Ketchuptown, Temperance Hill, and Zion. The alternatives were also modified to avoid two neighborhoods in the vicinity of Mullins and to minimize potential impacts to Aynor.

As a result of the public comments, and as part of the effort to continue to improve the alternatives to minimize impacts, the Reasonable Alternatives were again evaluated. The alternatives were once again divided into segments to study potential impacts and to be used to "assemble" the least impact alternatives.





Information regarding the wetland types, constraints, other layers evaluated by the CAT, existing communities, and public input was used to modify the segments to minimize impacts.

During the ACT coordination process, one concern expressed was that while the CAT designated alternatives represent the “best fit” corridor, there were several other wider corridors called suitability layers that could have similar impacts. The suitability grid illustrates the areas that were within 99.0 to 99.9 percent of the “best fit” corridor and those within 98.0 to 98.9 percent of the “best fit” corridor. Therefore, the suitability grids for each of the reasonable alternatives previously discussed were evaluated (refer to Figure 2-3, page 2-13).

Overall, approximately 108 individual segments were created or modified based on the suitability layers and public input (refer to Figure 2-4, page 2-14). The segments were compared using the Alternative Evaluation Criteria and the segments that had the highest impact were eliminated in favor of those with lower impacts. As explained previously, the Purpose and Need and then potential impacts were used to determine the best route for each portion of each overall alternative. The following impacts were quantified by the CAT and were taken into consideration to compare the segments:

- Wetland acreage (classified by previously impacted or not impacted);
- Wetland value (determined by ACT-assigned valuation and acreage impacted);
- Uplands;
- Species of concern;
- Infrastructure (i.e. churches or fire stations);
- Corridor length (used to estimate potential cost); and,
- Residential and business relocations.

The result was the development of segments that would avoid areas of concern (refer to Figure 2-4, page 2-14), for example, segments that would be farther west of Aynor (BG and AG1), farther east of Cool Spring (AT, AM2, AM3, and AM Mod1), farther west of Floydale (B2 and B4), farther north of Temperance Hill (J1, J2, and U2).

### *2.3.3 Were any new segments developed based on public comments?*

Approximately 12 new segments were developed that modified the corridor to cross the Little Pee Dee River southwest of U.S. Route 501, and two new segments were evaluated that followed the school district attendance zone boundary between Loris and Aynor (refer to Figure 2-5, page 2-15). In addition, Horry County, by resolution (refer to Resolution R-40-05, dated April 5, 2005, in Appendix C) had rejected “the Galivants Ferry crossing as a proposed route and asks South Carolina Department of Transportation to eliminate this route and replace it with this new southern route.”

The 12 new segments would be an average of 10 miles longer and would have an average of 235 acres of additional wetland impact than the corresponding segments in the seven Reasonable Alternatives designated by the ACT. The two alternatives that were designed to follow the school district attendance



zone boundary would be an average of four miles longer, with 124 acres of additional wetland impacts than the equivalent segments in the seven Reasonable Alternatives. These 14 segments were eliminated from further evaluation due to the high potential for environmental impacts and increase costs associated with them.

#### **2.3.4 How were preliminary interchange locations designated?**

Initial criteria for developing preliminary interchange locations were proposed as follows:

- To provide access to primary roadway routes, i.e. Interstates, U.S. Routes, and S.C. Routes;
- Provide a minimum spacing of two miles between interchanges;
- Cost (ensure a reasonable expenditure of public funds);
- Provide a maximum spacing of eight miles between interchanges to provide system linkage, ease of maintenance, increased safety, and opportunities for economic development;
- Provide interchanges where higher traffic volumes warrant; and,
- Minimize impacts.

Preliminary locations of interchanges were taken into consideration to fully evaluate potential impacts to the categories listed previously, as well as potential impacts to communities and relocations. The Marion, Dillon, and Horry County planning and economic development agencies were contacted to solicit their preferences for potential interchanges. As an example, some interchanges in Horry County were placed at or near S.C. Route 23 (Nichols Highway) at the request of Horry County to improve the access to the Cool Spring Industrial Park.

#### **2.3.5 How were the modifications of the Reasonable Alternatives evaluated?**

Segments that connected common ending points were compared against one another. Where the difference between the segments was clear cut, the segment that minimized overall impacts was chosen. The remaining segments were taken to the ACT for review. Following a detailed comparison of the segments, the ACT eliminated 36 segments from further evaluation based on potential community and environmental impacts. For additional information refer to the *Alternative Development Technical Memorandum*. Thirty-three individual segments remained that balanced environmental concerns and potential impacts to the public.

The 33 segments could be combined to form a total of 10 alternatives (refer to Figure 2-6, page 2-16). These 10 alternatives were evaluated and the results presented to the ACT for their consideration. The ACT reached a consensus on eliminating four of the 10 alternatives (September 7, 2005 ACT Meeting). Table 2.3, (page 2-17), presents the 10 alternatives and the reason for the elimination of four. This left six of the 10 alternatives to be evaluated further.

#### **2.4 How were the six Reasonable Alternatives evaluated further?**

At this point, the Reasonable Alternatives were established. These were to be given greater scrutiny in the environmental evaluation. The evaluation was expanded to include the comprehensive list of categories. In addition, more specific data about each alternative, including preliminary construction



*How would the alternatives incorporate multimodal planning?*

Planning for future provision of a multimodal facility within the interstate corridor was identified as a secondary need for the project. An ultimate 400-foot typical section was developed to accommodate the number of lanes needed for the future traffic volumes, as well as, a multimodal corridor (refer to Figure 1-4, page 1-5). Overpasses, interchanges, and access ramps would require modification when installing a future multimodal facility, such as rail. Bridges and overpasses would be retrofitted to accommodate the increased height and length that would be needed to meet installation criteria for rail, while the railroad would be designed out of the existing right-of-way at the interchanges. Alignment of the rail would pose additional challenges for access ramps and frontage roads.

Alternative 4 was determined to be the most difficult to accommodate rail, due to the extensive use of existing U.S. Route 501. It would be more expensive and require a more complex design due to the frontage roads and access ramps needed to retain access to existing landowners in the vicinity of the corridor. Alternative 1 and Alternative 8 would also be difficult to accommodate a multimodal facility due to their use of existing U.S. Route 501. Alternative 3 and Alternative 6, which are primarily on new location, would provide the most flexible design for installing future multimodal facilities due to the use of conventional interchanges.

*2.5.3 How did the alternatives compare in terms of human and environmental impacts?*

Each of the Build Alternatives would have different types of impacts and somewhat different benefits. Chapter 3 provides the details for the potential impacts associated with each of the alternatives, including the No-build.

Indirect and cumulative impacts for the Build Alternatives were evaluated as well. They all had similar impacts for each category evaluated (refer to Chapter 3). The only difference was a slight edge for Alternative 3 in terms of less induced farmland impacts and less potential impacts to cultural resources.

*No-build Alternative*

The No-build Alternative would fail to satisfy the stated purpose and primary and secondary needs for the project. The purpose of the proposed project "is to provide an interstate link between I-95 and the Myrtle Beach region to serve residents, businesses, and tourists while fulfilling congressional intent in an environmentally responsible and community sensitive manner."

The primary needs for the project are to provide system linkage between the interstate system and the Myrtle Beach region and to enhance economic opportunities and tourism in South Carolina. Secondary needs are to relieve local traffic congestion, provide for multimodal planning, and improve hurricane evacuation.





The No-build Alternative would not satisfy the project's purpose and need, since it would not provide:

- A direct link between I-95 and the Myrtle Beach region to improve system linkage;
- Opportunities for economic growth and tourism;
- The facilitation of a more effective evacuation of the Myrtle Beach region during emergencies;
- A reduction in existing traffic congestion on roads accessing the Myrtle Beach region; or,
- A plan for future provision of a multimodal facility.

The No-build Alternative would not provide the interstate link between I-95 and the Myrtle Beach region. Failure to provide this link would lead to the loss of projected economic opportunities, the potential loss of tourism due to in-season congestion for tourists visiting Myrtle Beach, no improvement in local traffic congestion, longer travel times, the loss of the multimodal opportunities provided by the corridor, and no improvement in hurricane evacuation.

The projected economic benefits from constructing I-73 are summarized previously in Chapter 2, Section 2.5.1 (page 2-19). This analysis shows that the study area would benefit in terms of the number of jobs and money flowing into the area from any of the Build Alternatives.

Traffic congestion is currently a problem for this area primarily on "change-over day" when the tourists at the beach leave and new tourists arrive. This causes delays along U.S. Route 501 from Aynor south. By providing an interstate connection from S.C. Route 31 and U.S. Route 17 all the way to I-95, a high-speed alternative route to bypass this congestion would be available. The traffic travel savings between the No-Build and several of the Build Alternatives show savings of as much as 25 percent for the 60 mile trip, based upon the AADT volumes. This difference would be greater for peak season travel, when U.S. Route 501 is heavily congested (refer to the *Traffic Technical Memorandum*).

Hurricane evacuation times would be dramatically reduced with any of the Build Alternatives. Because I-73 is a controlled-access facility, it also would make lane reversal, switching in-bound travel lanes to handle out-bound traffic, simpler. I-73 would allow people leaving the Myrtle Beach area an alternative to the bottleneck on U.S. Route 501 and provide additional capacity for evacuees. The differences in evacuation times between the No-Build Alternative and the Build Alternatives are illustrated in Table 1.9 (page 1-23).

#### The Build Alternatives

All of the Build Alternatives satisfied the purpose and needs for the project. System linkage and multimodal planning would be provided by any of the Build Alternatives. Hurricane evacuation was essentially the same for all Build Alternatives. There was some variability between the alternatives in terms of different measures of the economic benefits and traffic

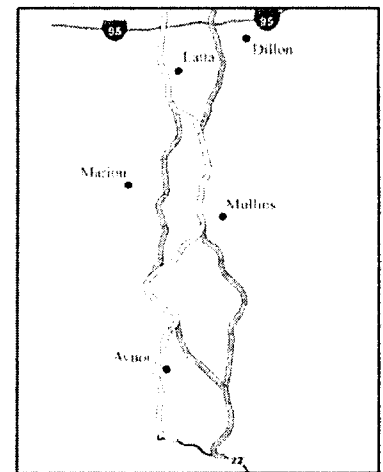


benefits. For example, Alternatives 3, 6, and 7 showed the biggest increase to Gross Regional Product, while Alternatives 2 and 8 showed the biggest increase in income and employment. However, this variability was not enough to set any one above the other alternatives.

Induced impacts for several categories were also looked at between the Build Alternatives. Potential land use, wildlife habitat, wetlands, streams, water quality impacts were all areas that showed very little differentiation between the alternatives. In fact, the No-Build Alternative, which served as a baseline for future impacts based upon past and current growth trends, showed substantially more impacts than did any of the Build Alternatives by themselves. The categories that served to separate the alternatives were natural resource related (wetlands, streams, and farmland) and human resource related (communities, public input, traffic maintenance, and cost).

#### Alternative 1

Alternative 1 starts at the southernmost interchange with I-95, and from there extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501, crosses to the east immediately north of Temperance Hill, then extends southeast where it would interchange with S.C. Route 41A. It continues southeast and would have an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins it angles back to the south towards U.S. Route 501. It would have an interchange with S-91 (which would provide access to S.C. Route 41) and then cross the Little Pee Dee River at the existing U.S. Route 501 crossing. It passes on the east side of the Galivants Ferry Historic District and then extends southeast along U.S. Route 501 to an interchange with S.C. Route 22. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. There would be access ramps providing access between U.S. Route 501 and I-73 along U.S. Route 501 at the Little Pee Dee River crossing and along 501 just south of Aynor. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 1

It would have 418 acres of wetland impacts, over 30 acres more than the Preferred Alternative, and the wetlands potentially impacted have a high value rating (2,919). This alternative would avoid crossing the Buck Swamp and Lake Swamp systems. It would provide better access to the 17,000 acre "inland port" proposed by Marion County (refer to letter dated March 27, 2006, in Appendix C).



This alternative would have the most relocation of residents and businesses (121). It would have one of the highest costs (\$1.498 billion, 2011 dollars), over \$200 million more than the Preferred Alternative. Alternative 1 would impact 1,993 acres of farmland. It would have 60 stream crossings, 10 of which are designated as outstanding resource waters (ORW). It would impact 19,137 linear feet of stream channel and cross three impaired water bodies. It would impact more floodplains (173 acres) than the Preferred Alternative. It would also impact approximately 950 acres of wildlife habitat, about 120 acres more than the Preferred Alternative.

Outstanding resource waters are freshwaters or saltwaters which constitute an outstanding recreational or ecological resource, or those freshwaters suitable as a source for drinking water supply purposed, with treatment levels specified by SCDHEC.

The Citizens of the Southern Route, comprised of residents of the Latta area, submitted a petition dated March 20, 2006, with 20 signatures (refer to *Public Involvement Technical Memorandum*) requesting that this route, the southern route, not be used and that a northern route for I-73 be chosen.

Alternative 1 would cross from west to east in close proximity to the Temperance Hill community. This community has objected to the alternatives that would come in close proximity to their community (refer to two petitions from Temperance Hill community; one, from Ebenezer Southern Methodist Church, dated March 28, 2005, signed by 43 people and a second, signed by 161 people dated February 27, 2006, in the *Public Involvement Technical Memorandum*). Marion County Council, in a resolution dated March 14, 2006, specifically requested "that the I-73 Committee review any and all possible plans for construction of I-73 which would reduce the impact to the Temperance Hill Community of Marion County." (refer to resolution in Appendix C).

Other comments also were received from local governments with jurisdiction over this area. Dillon County prefers the northwestern segment of the alignment to be the other, most northern alignment (refer to letters from Dillon County Council, dated February 28, 2006, Dillon County Development Board, dated March 1, 2006, and the I-95 Gateway Industrial Park Board, dated March 1, 2006). The South Carolina Department of Commerce equally favored this alternative, along with Alternatives 3, 4, 5, and 7, since they would not impact the Gateway Industrial Park (April 19, 2006 ACT meeting, refer to Section 4.3).

The Marion County Administrator, in two letters dated March 6, 2006, and March 27, 2006, (refer to Appendix C) requested consideration for the County's proposed "inland port" when considering the routing of I-73. The routes that start farther south on I-95, such as Alternatives 1, 3, 4, 5, and 7, are in closer proximity to this proposed project.



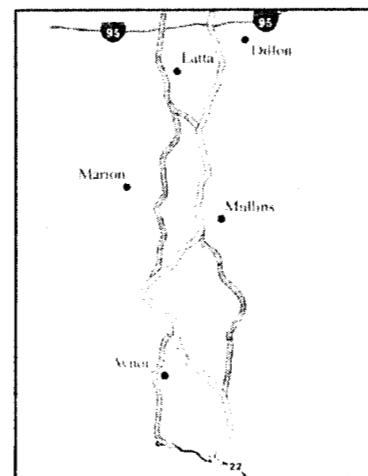
Horry County, in a letter dated March 13, 2006, (refer to letter in Appendix C), reported a unanimous vote against the route that crossed at Galivants Ferry and extended southeast along U.S. Route 501 through Aynor. The Town of Aynor voted unanimously (refer to letter dated March 21, 2006, in Appendix C) to oppose the route that would be constructed along existing U.S. Route 501 at Galivants Ferry and through Aynor. Letters were also received from the Horry County School administration (refer to letters dated April 6, 2005, April 12, 2005 and January 27, 2006, Appendix C) that expressed opposition to the segment that would go through Aynor along U.S. Route 501. Comments received at the public information meetings included those from a large number of people opposing this route. The SCDNR and USFWS also expressed opposition to this segment (April 19, 2006 ACT meeting, refer to Section 4.3).

Alternative 1 would have one-way frontage roads along U.S. Route 501 in Aynor, which, although they are the best way to maintain access to properties on both sides of I-73, would be inconvenient for local residents used to accessing each side of U.S. Route 501. It would pass between the incorporated limits of Aynor and the Aynor Elementary and Middle Schools. Construction of this alternative would also impact the athletic facility associated with Aynor High School, which, because it is also available for public use, would be considered a Section 4(f) impact (refer to Chapter 3 and Appendix D, *Draft Section 4(f) Evaluation*, for information on Section 4(f)).

Based upon coordination with the State Historic Preservation Office (SHPO), this alternative would also be expected to have the potential for negative visual impacts to the Galivants Ferry Historic District (refer to Chapter 3, Section 3.7, page 3-90).

#### Alternative 2

Alternative 2 starts at the northernmost interchange with I-95, and from there southeast on the western side of Dillon, east of Latta, to an interchange with U.S. Route 501. It continues southeast to an interchange with S.C. Route 41A, then southeast to an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins it angles back to the south to U.S. Route 501. It would have an interchange with S-91 (which would provide access to S.C. Route 41) and then cross the Little Pee Dee River at the existing U.S. Route 501 crossing. It passes on the east side of the Galivants Ferry Historic District and then extends east along Winburn Road. There would be an interchange with S-23, then it turns to the southeast to an interchange with



Alternative 2

S.C. Route 22 near Bakers Chapel, about two miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 2 would be east of the Temperance Hill community and thus would minimize the impacts to that community. It would also avoid the impacts to Aynor resulting from Alternative 1. There are no Section 4(f) impacts associated with this alternative. This alignment is supported by the letters received from Dillon County Council, Dillon County Development Board, and the Gateway Industrial Park Board, as detailed in the discussion of Alternative 1.

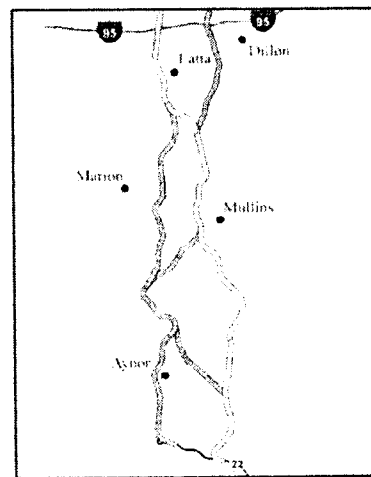
Alternative 2 has one of the highest costs of all the alternatives (\$1.548 billion), more than \$250 million higher than the Preferred Alternative. It would have approximately 444 acres of wetland impacts, 64 acres more than the Preferred Alternative. These impacts would include a crossing of Buck Swamp. Farmland impacts (2,009 acres) would be higher than most of the other alternatives. It would impact 62 stream channels, with a total of 19,249 linear feet of impact. Ten of the channels are classified as ORW waters and six are impaired. It would impact 193 acres of floodplain, and would impact approximately 960 acres of wildlife habitat.

It would impact the Zion community, located along S.C. Route 41A, north of Mullins. It would potentially have visual impacts to two historic districts, one at Galivants Ferry and the other at the Bethea Property. This alternative would relocate three churches, the Dothan Baptist Church, north of I-95 (this was impacted due to changes in design to avoid the new Bethea Historic District), the New Memorial Temple of Christ, at the interchange of I-73 and U.S. Route 501, and the Spring Grove Baptist Church, just south of where this alignment crosses S.C. Route 917.

A petition signed by 258 people was received from the "residents living in the Northern Potential Corridor of the Southern Project" requesting that I-73 not be routed through the northern corridor from I-95. Despite impacting the Gateway Industrial Park, located just south of I-95, Alternative 2 is supported by the Gateway Industrial Park Board. It would impact residents along Winburn road. Several letters were received from people along Winburn Road objecting to the road being routed through their neighborhood.

### Alternative 3 - Preferred Alt

Alternative 3 starts at the southernmost interchange with I-95, and from there extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501, crosses to the east immediately north of Temperance Hill, then extends southeast where it would interchange with S.C. Route 41A. It continues southeast and would have an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins it angles slightly east and crosses the Little Pee Dee River at the existing S.C. Route 917 crossing. It would have an interchange with S-308, then continues southeast on new alignment to an interchange with S.C. Route 22 near Bakers Chapel, about two



Alternative 3



miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.

This alternative would have the lowest total wetland impacts (384 acres) and would avoid crossing Buck Swamp. It would have a crossing of Lake Swamp, which is located southeast of the Little Pee Dee River and is a tributary to that river. It is the alternative with the lowest cost (\$1.296 billion). It would have the lowest farmland impacts (1,708 acres) as well. It would impact 58 stream crossings, with a total of 19,213 linear feet of channel. Four of the streams are classified as ORW and three are impaired. It would impact the least acreage of wildlife habitat (831 acres). The proposed floodplain impacts are also the lowest (94 acres) for this alternative. It is one of three alternatives, with the other two being Alternatives 5 and 7, indicated as potentially preferred by the SCDNR and USFWS. The SHPO has indicated this route is their preferred because of the lack of impacts to cultural resources.

It is in close proximity to the proposed "inland port" designated by Marion County per their letters of March 2006 (refer to Appendix C). It would not impact the Gateway Industrial Park, but it is not the alignment requested by Dillon County. It follows the route preferred by Horry County (refer to letter dated March 13, 2006, in Appendix C).

Alternative 3, as well as Alternative 6, would most closely approximate the school attendance boundary for the Aynor area schools. Consideration of this boundary when designating a corridor for I-73 was requested by the Horry County School District and in a petition signed by over 900 citizens of Horry County (refer to letter dated April 12, 2005, and letter dated January 16, 2006, that came with an attached petition, Appendix C and *Public Involvement Technical Memorandum*).

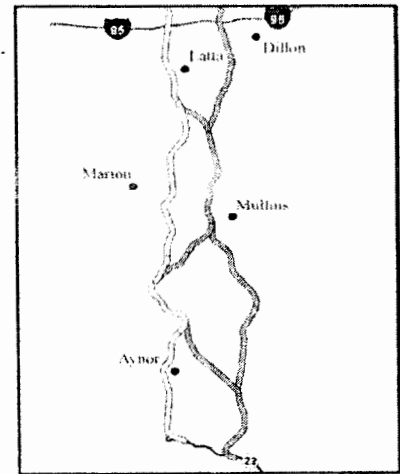
This alternative, like Alternative 1, would also cross from west to east in proximity to the Temperance Hill community. This community has objected to the alternatives that come in close proximity to their community (refer to petitions from Temperance Hill community, in the *Public Involvement Technical Memorandum*). It would also impact the Zion community, located along S.C. 41A, north of Mullins.

This alternative would impact a Section 4(f) resource, the Vaughn tract, which is part of the Little Pee Dee River Heritage Preserve located around the S.C. Route 917 crossing of the Little Pee Dee River. The project would be built parallel, and to the south of existing S.C. Route 917 where it crosses the Little Pee Dee River. The alignment was moved to this location to avoid creating a new crossing of the Little Pee Dee River, which could lead to fragmentation of wildlife habitat (refer to Appendix D, *Draft Section 4(f) Evaluation*). This alternative would cross the fewest ORW waters and the second fewest Section 303(d) waters of the Build Alternatives (impaired water quality, refer to Chapter 3, Section 3.19).



#### Alternative 4

Alternative 4 starts at the southernmost interchange with I-95, and from there extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501, extends southeast on the eastern side of Marion, where it would have an interchange with the U.S. Route 501 Bypass (this would be the access to S.C. Route 41A also). It continues southeast from Marion to the U.S. Route 501 crossing of the Little Pee Dee River. It then passes on the east side of the Galivants Ferry Historic District and then extends southeast along U.S. Route 501 to an interchange with S.C. Route 22. There would be access ramps providing access between U.S. Route 501 and I-73 along U.S. Route 501 at the Little Pee Dee River crossing and along 501 just south of Aynor. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 4

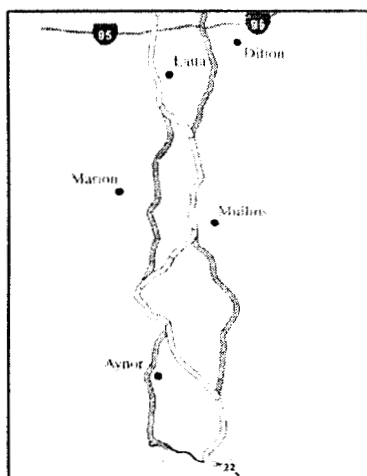
This alternative is the shortest alternative at 42.6 miles long. It would avoid the Temperance Hill community. It also would be in close proximity to the proposed Marion County "inland port" (refer to the letters from Marion County Administrator, Appendix C). An undated petition signed by 229 residents was received from the Bluff Road/Penderboro Community opposing Alternatives 4 and 7 (refer to *Public Involvement Technical Memorandum*).

This alternative also would have low farmland impacts (1,717), virtually the same as Alternative 3. The estimated cost for this alternative would be \$1.404 billion, more than \$200 million more than the Preferred Alternative. This alternative would have the highest wetland impacts at 497 acres, about 113 acres higher than the Preferred Alternative. The only other alternative that would have comparable impacts is Alternative 7. They both share a similar configuration. However, Alternative 4 continues down U.S. Route 501 through Aynor to S.C. Route 22, while Alternative 7 moves east and intersects with S.C. Route 22 near Bakers Chapel.

Much of the wetland impacts for these two alternatives would come from impacted wetlands along the existing U.S. Route 501 bypass east of Marion. It would impact 45 streams, with an estimated 17,068 linear feet of channel. Nine ORW waters would be crossed, as would six impaired waters. It would impact the greatest acreage of floodplain at 321 acres. The Datwyler Rubber facility, located at U.S. Route 76 and U.S. Route 501 Bypass, could be impacted by this alignment.

As mentioned above, this alternative would go through Aynor, similar to Alternative 1. All the concerns raised by Horry County officials and the Town of Aynor and all of the other impacts





Alternative 5

that would result from the segment that follows U.S. Route 501 through Aynor (one-way frontage roads, school access, Section 4(f) impacts) would apply to this alternative as well. The SCDNR and USFWS also expressed opposition to this segment. In addition to the Section 4(f) impact associated with the Aynor High School athletic facilities, there would be another impact to an archaeological site near Marion. There would also be a visual impact to the Galivants Ferry Historic District.

#### Alternative 5

Alternative 5 starts at the southernmost interchange with I-95, and from there extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501, crosses to the east immediately north of Temperance Hill, then extends southeast where it would interchange with S.C. Route 41A. It continues southeast and would have an interchange with U.S. Route 76 on the western side of Mullins.

Once south of Mullins it angles back to the south towards U.S. Route 501. It would have an interchange with S-91 (which would provide access to S.C. Route 41) and then cross the Little Pee Dee River at the existing U.S. Route 501 crossing. It passes on the east side of the Galivants Ferry Historic District and then extends east along Winburn Road. There would be an interchange with S-23, then it turns to the southeast to an interchange with S.C. Route 22 near Bakers Chapel, about two miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.

This alternative would have 413 acres of wetland impacts, 29 acres more than the Preferred Alternative. It would not cross either Buck Swamp or Lake Swamp. It is one of the three alternatives indicated as potentially preferred by the SCDNR and USFWS (April 19, 2006 ACT meeting, refer to Section 4.3). It would impact 56 streams, with 18,137 linear feet of channel. Ten ORW and two impaired waters would be crossed. It would have about 176 acres of floodplain impacts. It would have 898 acres of wildlife habitat impacts. It is the longest alternative (48.3 miles) and would impact the most farmland (2,136 acres).

Alternative 5 would have no Section 4(f) impacts. The cost for this alternative is \$1.436 billion, \$140 million more than the Preferred Alternative. It would also be in close proximity to the Marion County proposed "inland port" (refer to letters from Marion County Administrator in Appendix C).

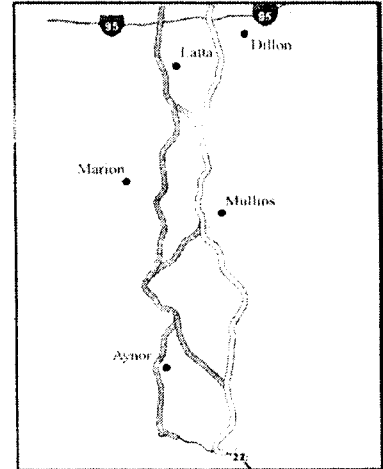
It would be in close proximity to the Temperance Hill community, which had drawn opposition from several residents (refer to petitions in the *Public Involvement Technical Memorandum*). It would impact the Zion community as well as the Winburn community. Alternative 5 has the



potential to have visual impacts to the Galivants Ferry Historic District. It would also result in a relatively high number of relocations (98).

#### Alternative 6

Alternative 6 starts at the northernmost interchange with I-95, and from there extends southeast on the western side of Dillon, east of Latta, to an interchange with U.S. Route 501. It continues southeast to an interchange with S.C. Route 41A, then southeast to an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins it angles slightly east and crosses the Little Pee Dee River at the existing S.C. Route 917 crossing. It would have an interchange with S-308, then continues southeast on new alignment to an interchange with S.C. Route 22 near Bakers Chapel, about two miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 6

This alignment is supported by Dillon County Council, Dillon County Development Board, and the Gateway Industrial Park Board, as detailed in the discussion of Alternative 1 (refer to letters in Appendix C). Alternative 6 would avoid the southern Latta area. It would avoid the Temperance Hill community, which is the desire of Marion County and the local residents (refer to resolution and petitions in the *Public Involvement Technical Memorandum*). It also would avoid Aynor, which is consistent with the Horry County Council and Town of Aynor requests (refer to letters in Appendix C).

Alternative 6, along with Alternative 3, would most closely approximate the school attendance boundary for the Aynor area schools. Consideration of this boundary when designating a corridor for I-73 was requested by the Horry County School District and in a petition signed by over 900 citizens of Horry County (refer to letters in Appendix C and the *Public Involvement Technical Memorandum*).

This alternative would cost \$1.466 billion, \$112 million more than the Preferred Alternative. Alternative 6 would also have 1,835 acres of farmland impacts. This alternative would also have 413 acres of wetland impacts, and would cross Buck Swamp and Lake Swamp. Alternative 6 would cross 64 streams with 20,327 linear feet of channel. There are four ORW waters and seven impaired waters crossed by this alternative. It would have 111 acres of floodplain impacts. This alternative would also have 889 acres of wildlife habitat impacts.

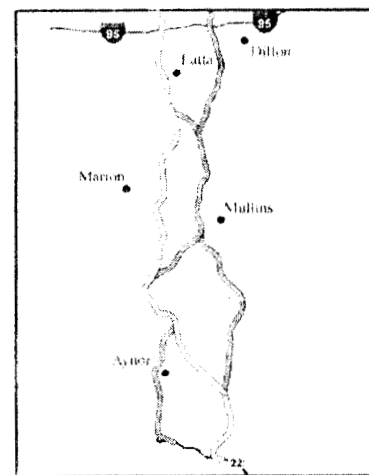


Because of the close proximity of this alternative's I-95 interchange with that of the S.C. Route 34/I-95 interchange that has resulted from moving the interchange to avoid the Bethea Historic District, this interchange would be complex. These roads would increase the cost and impact associated with this interchange. It would be close to the proposed Bethea Historic District which might result in visual impacts to this district. Although Alternative 6 is supported by the Gateway Industrial Park Board, it would impact a portion of the Gateway Industrial Park located immediately south of I-95.

It would impact the Zion community, and would result in the relocation of three churches - the Dothan Baptist Church, the New Memorial Temple of Christ, and the Spring Grove Baptist Church. It would also impact a Section 4(f) site, the Vaughn tract of the Little Pee Dee River Heritage Preserve (refer to Appendix D, *Draft Section 4(f) Evaluation*).

#### Alternative 7

Alternative 7 starts at the southernmost interchange with I-95, and from there extends southeast on the western side of Latta where it would have an interchange with U.S. Route 501. It then extends southeast on the eastern side of Marion, where it would have an interchange with the U.S. Route 501 Bypass (this would be the access to S.C. Route 41A also). It continues southeast from Marion to the U.S. Route 501 crossing of the Little Pee Dee River. It then passes on the east side of the Galivants Ferry Historic District and then extends east along Winburn Road. There would be an interchange with S-23, then it turns to the southeast to an interchange with S.C. Route 22 near Bakers Chapel, about two miles west of the U.S. Route 701/S.C. Route 22 interchange. The interchange with S.C. Route 22 would be designed so that the traffic movement from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 7

This alternative would not be in accord with the request of the "Citizens of the Southern Route" south of Latta, but would accommodate the concerns of the citizens living along the northern route near I-95. It would pass to the west of the Temperance Hill community. It would be closer to the proposed site of the "inland port" (refer to letters from Marion County Administrator in Appendix C), but would not be the alignment preferred by Dillon County (refer to letters from Dillon County, Appendix C). The residents of the Bluff Road/Penderboro Community is opposed to Alternative 7. This is one of the three routes recommended by SCDNR and USFWS (April 19, 2006 ACT meeting, refer to Section 4.3). The Datwyler Rubber facility, located at U.S. Route 76 and U.S. Route 501 Bypass, could be impacted by this alternative.

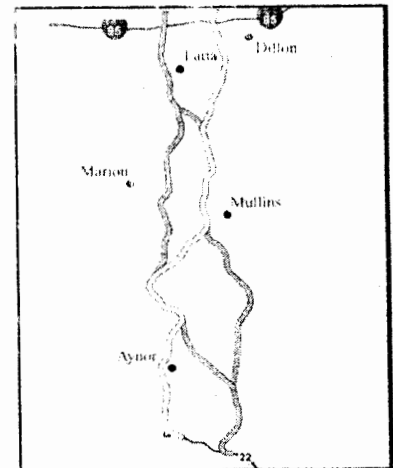


Alternative 7 would cost \$1.362 billion, \$66 million more than the Preferred Alternative. This alternative would have a high number of wetland impacts (492 acres), virtually the same as Alternative 4 (497 acres), and over 100 acres more than the Preferred Alternative. It would also have 1,781 acres of farmland impacts. This alternative would have the fewest stream crossings (41) of all the Build Alternatives. It would have 16,068 linear feet of channel and nine ORW waters in the corridor. Five of the streams crossed are impaired. It would have the most floodplain impacts, at 323 acres. It would impact approximately 932 acres of wildlife habitat.

It would impact a potentially eligible (for listing on the list of National Register of Historic Places) archaeological site near Marion and might have visual impacts on the Galivants Ferry Historic District. The archaeological site would be a Section 4(f) site. It would also impact the Winburn Road community.

#### Alternative 8

Alternative 8 starts at the northernmost interchange with I-95, and from there extends southeast on the western side of Dillon, east of Latta, to an interchange with U.S. Route 501. It continues southeast to an interchange with S.C. Route 41A, then southeast to an interchange with U.S. Route 76 on the western side of Mullins. Once south of Mullins it angles back to the south to U.S. Route 501 and crosses the Little Pee Dee River at the existing U.S. Route 501 crossing. It would have an interchange with S-91 (which would provide access to S.C. Route 41) and then cross the Little Pee Dee River at the existing U.S. Route 501 crossing. It passes on the east side of the Galivants Ferry Historic District and then extends southeast along U.S. Route 501 to an interchange with S.C. Route 22. There would be access ramps providing access between U.S. Route 501 and I-73 along U.S. Route 501 at the Little Pee Dee River crossing and along 501 just south of Aynor. The interchange with S.C. Route 22 would be designed so that moving from I-73 to S.C. Route 22 would be the predominant movement through the interchange. Like all of the Build Alternatives, it would follow S.C. Route 22 to its terminus with U.S. Route 17 near Briarcliff Acres.



Alternative 8

This alternative would follow the northern route preferred by Dillon County and the "Citizens of the Southern Route" (refer to letters in Appendix C and the *Public Involvement Technical Memorandum*), and would be east of the Temperance Hill community.

Alternative 8 would have the highest cost (\$1.596 billion), \$300 million more than the Preferred Alternative. This alternative would impact 449 acres of wetland. It would have the highest impact to farmland (2,155 acres). It has the most potential stream crossings (66). Approximately



20,247 linear feet of channel would be crossed, which would include 10 ORW streams and seven impaired streams. An estimated 191 acres of floodplains would be impacted. It would impact the most wildlife habitat with 1,011 acres. There would have to be 3 churches relocated, the same as Alternatives 2 and 6. It would potentially have visual impacts to the potential Bethea Historic District and the Galivants Ferry Historic District.

Although it is supported by the Gateway Industrial Park Board, Alternative 8 would impact the Gateway Industrial Park. It would extend through Aynor. Horry County and the Town of Aynor voted unanimously to oppose the route that would be constructed along existing U.S. Route 501 at Galivants Ferry and through Aynor (refer to letters in Appendix C). Letters that expressed opposition to this segment were also received from the Horry County School District Administration (refer to letters in Appendix C). A large number of people expressed their opposition to this segment at the public information meetings. The SCDNR and USFWS also expressed opposition to this segment.

Alternative 8, like Alternatives 1 and 4, would have one-way frontage roads along U.S. Route 501 in Aynor, which, as previously described, which would be inconvenient for local residents using them to access each side of U.S. Route 501. Alternative 8 also would pass between the incorporated limits of Aynor and the Aynor Elementary and Middle Schools. Construction of this alternative would also impact the athletic facility associated with Aynor High School, which, because it is also available for public use, would be considered a Section 4(f) impact as well (refer to Chapter 3 and Appendix D, *Draft Section 4(f) Evaluation*, for information on Section 4(f)).

#### 2.5.4 Which alternative was designated as the Preferred Alternative?

Alternative 3 would have the least wetland impacts (384 acres), in both acreage and wetland value, lowest cost (\$1.296 Billion), least impact to farmland (1,708 acres), least impact to potential historic sites (this alternative was preferred by the SHPO as stated at an ACT meeting), was one of three preferred by the SCDNR and USFWS, and, along with Alternative 6, would be the most constructible. This alternative, along with Alternative 6, would be the least likely to lead to changes in the land use, thus changes to the way of life, in western Horry County. This is in keeping with the opinion expressed by the public at meetings, in letters, and telephone calls, and by the elected officials from Horry County.

When comparing the input from the public and from elected officials, input from the resource and regulatory agencies, the many potential environmental and human resource impacts associated with the Build Alternatives, the constructability, and construction costs, the alternative that would best satisfy the public need while minimizing impacts would be Alternative 3.

All eight of the Build Alternatives have features that are favorable and advantageous. Many of them have one or more flaws, that when compared with the other alternatives make that alternative less suitable. Alternatives 1, 4 and 8 each have a segment that crosses the Little Pee Dee River on U.S.



Route 501, and then extends around the Galivants Ferry Historic District back along U.S. Route 501 through Aynor to intersect S.C. Route 22. Horry County Council and the Town of Aynor voted unanimously to have this route eliminated. The SCDNR and USFWS voiced opposition to the Aynor segment (April 19, 2006 ACT meeting, refer to Section 4.3). At public meetings the people of western Horry County spoke overwhelmingly against this, and any other corridor that came near Aynor and Cool Spring. For these reasons alone, these three alternatives could be eliminated. Adding to this the difficulty of building along and within the U.S. Route 501 corridor, the traffic management problems associated with building there, and the change in travel patterns associated with the one-way frontage roads makes them even less attractive alternatives.

Furthermore, each of these alternatives has other negative issues associated with it. Alternative 1 would have the most relocations (121), one of the highest costs (\$1.498 Billion), potential visual impacts to Galivants Ferry Historic District, and a Section 4(f) impact to Aynor High School (athletic facilities used by the public). Alternative 4 would have the highest wetland impacts (497 acres), a cost of approximately \$1.404 Billion, and the Section 4(f) impact at Aynor High School. Alternative 8 would have the highest cost (\$1.595 Billion), a high amount of relocations (115), the highest impact to farmland (2,155 acres), impact three churches (Dothan Baptist Church, New Memorial Temple of Christ, and Spring Grove Baptist Church), would impact the Gateway Industrial Park, cross Buck Swamp, and potentially impact two historic districts (Bethesda and Galivants Ferry). Based upon all of these negative impacts and negative public input, these three alternatives were eliminated.

The five remaining Build Alternatives 2, 3, 5, 6, and 7 were all viable alignments. Alternative 7 was eliminated primarily because it had such high wetland impacts (492 acres), but also because of the constructability issues for the portions at the U.S. Route 501 Bypass and at the Little Fee Dee River crossing. Because the NEPA process is being done at the same time as the Section 404 permitting process, the need to find a least impact alternative was a major consideration. That this alternative had such high wetland impacts as compared to the other Reasonable Alternatives was enough to eliminate it from further consideration as the Preferred Alternative. The differentiation between the other four alternatives, Alternatives 2, 3, 5, and 6, was because Alternative 3 had less impacts or better features than these remaining alternatives.

# SOUTHERN ENVIRONMENTAL LAW CENTER

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March 28, 2011

*VIA US Mail and Email*

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Mark Giffin, SCDOT Statewide 401 Certification Project Manager  
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S.C. Department of Health and Environmental Control  
2600 Bull Street  
Columbia, SC 29201-1708

**Re: Application for Section 404 Permit/Section 401 Water Quality Certification  
for I-73 Project in South Carolina (P/N #2008-01333-DIS)**

Dear Mr. Brumagin and Mr. Giffin:

The Southern Environmental Law Center ("SELC"), on behalf of the Coastal Conservation League; the Sierra Club, South Carolina Chapter; and Christine Ellis, Waccamaw Riverkeeper, Winyah Rivers Foundation, submits these comments concerning the above-referenced joint public notice issued by your agencies on January 26, 2011. The South Carolina Department of Transportation ("SCDOT") has applied to the U.S. Army Corps of Engineers ("the Corps") for a Section 404 permit under the Clean Water Act. In conjunction with its application for this proposed wetlands fill permit, SCDOT has also applied to the South Carolina Department of Health and Environmental Control ("DHEC") for a Section 401 water quality certification.

## **Summary of Concerns**

The joint public notice misstates critical facts that are key to the permitting and certification determinations regarding the proposal to construct I-73 in South Carolina on a new location alignment, and that concern the nature of the Congressional authorization for the project, and the plans of the other states along High Priority Corridor 5. Currently, there is no



“National I-73 Project” and, in fact, some of the states along the corridor, Michigan<sup>1</sup> and Ohio, plan to fulfill Congressional intent by relying on upgrades to existing highways, rather than constructing a new interstate. (See Attachment 8, pp.1-2, discussed below.) Other states, notably North Carolina, are constructing I-73 and I-74 by combining upgrades of existing highways with some new location segments that closely parallel existing highways. (See North Carolina I-73/74 corridor map, Attachment 3.) Because similar less damaging, less expensive options were not subject to detailed study in the EISs for the Northern and Southern segment for the I-73 project in South Carolina, the NEPA process does not provide a sufficient basis for the Corps and DHEC to make permitting and certification determinations. Significant additional study of alternatives found to be both “practicable” and to meet Congressional intent in the other states along the High Priority Corridor must be carefully studied prior to issuing project authorizations.

For the Southern Segment, from I-95 to SC 22 (the Conway Bypass), it appears that an upgrade to an expressway along the SC 38/US 501 corridor, along the SC 9 corridor or connecting SC 22 directly to the I-74 corridor in North Carolina east of I-95, could be completed for approximately \$150 million, \$430 million or \$320 million, respectively. (See Attachment 8, p.11). This compares very favorably to the \$1.29-billion estimate for the Southern Segment alone, and the \$2.37-billion estimate for the proposed 75-mile-long interstate to Rockingham, North Carolina. Given the close proximity of the I-74 corridor to the I-73 corridor in Marlboro County (see I-73 and I-74 Corridors Map, Attachment 1) and anticipated lower traffic volumes, elimination of the Northern segment of I-73 could save South Carolina citizens \$1.08 billion dollars.

As detailed below, the permit and certification must be denied because SCDOT has not satisfied essential requirements of federal and state law for the following reasons, which are discussed in detail below:

(1) neither the proposed I-73 preferred location alignment, nor the proposed project design as an interstate, is the “least damaging practical alternative” to meet the underlying project purpose of enhancing highway capacity to the Myrtle Beach area;

(2) the proposed project alignment would affect/have an impact on special aquatic sites, protected under federal and state law, despite the existence of feasible alternatives; and

(3) the proposed mitigation is not adequate to compensate for the tremendous landscape-scale impacts that would occur to aquatic resources, including 342 acres of wetlands, from a new-location, 75-mile-long Interstate highway;

(4) water quality impacts to almost four miles of streams have not been minimized or adequately mitigated.

We appreciate the opportunity to submit these comments, which supplement our previous comment letters on the two Environmental Impact Statements prepared for the Northern and

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<sup>1</sup> According to a recent survey by the Myrtle Beach Chamber of Commerce, only 1.9% of visitors to Myrtle Beach come from Michigan, calling into question the claim by I-73 project boosters of the need for a new interstate linking them. <http://www.myrtlebeachchamber.com/research/docs/2007%20Stay%20&%20Play%20survey.pdf>.

Southern I-73 project segments, Attachments 5 through 7, which are incorporated by reference. Due to the project's scale and impacts to natural and human communities, as well as the level of controversy and contested issues discussed herein, we request at least one joint public hearing prior to decisions on the permit and certification requests. In addition, we reserve the right to supplement our comments after we receive the detailed mitigation information we have requested and additional information is developed and made available regarding the final mitigation plan.

### **Background to Comments**

SCDOT proposes to construct a new four-lane divided highway, to become part of the federal Interstate Highway System, extending from the Rockingham, North Carolina bypass to the Myrtle Beach area, traversing four counties and terminating at the Conway Bypass (S C 22). The portion of the proposed road across South Carolina spans 75.3 miles. This large-scale undertaking would result in the disturbance of over 340 acres of wetlands, and 46 different stream systems (approximately 20,000 linear feet), and would fragment forests, farmland and rural communities on a massive scale unprecedented in recent South Carolina history. In addition, 99 homes, business and churches would be destroyed by the project as proposed.

SCDOT currently estimates the total cost of I-73 in South Carolina at \$2.37 billion. No funding source has yet been identified, though SCDOT had hoped earmarks, which have yet to materialize in any significant amount, would play a role. SCDOT, at one point, also proposed building the project as a toll road, which would greatly reduce its benefits to the public and potential viability, as 40-70% of travelers would not find it worth paying a fee when a number of existing four-lane roads provide adequate alternatives. Even then, SCDOT estimates that toll revenue would suffice to finance only 25% of project costs, leaving taxpayers to foot the remainder of the bill.

The price tag for I-73 dwarfs the entire annual SCDOT operating budget, which, for fiscal year 2009-2010, slightly exceeded \$1.4 billion, including a substantial infusion of ARRA stimulus funds. Over a typical TIP cycle, however, only several hundred million dollars can be expected to be devoted to new capacity projects across the entire state of South Carolina. Thus, the project could be expected to consume the State's entire road-building budget for up to a decade. Overall, the SCDOT 2008 Long Range Plan identifies \$48.3 billion in system needs through 2030, and only \$19 billion in anticipated funding, leaving a \$29.9-billion shortfall. Thus, I-73 as proposed would consume over 10% of South Carolina's entire anticipated transportation budget for capacity projects, maintenance, operations and other needs, over the next two decades. In short, a new-location \$2.4-billion dollar interstate does not appear to be "practicable" even from a narrow economic standpoint.

**SCDOT's Section 404 Permit Application Fails to Satisfy the CWA and the 404(b)(1) Guidelines and Must Therefore Be Denied.**

The CWA and the Environmental Protection Agency (EPA)'s Section 404(b)(1) Guidelines dictate the circumstances under which the Corps may permit discharges of dredged or fill material into wetlands or other waters. See 33 U.S.C. § 1344; 40 C.F.R. § 230.10. These EPA "Guidelines" are, in fact, binding regulations that impose substantive standards for evaluating permit applications. The Corps's own regulations recognize that the Corps must deny a Section 404 permit if the discharge for which a permit is sought would violate the Guidelines. 33 C.F.R. § 320.4(a)(1).

The 404(b)(1) Guidelines prohibit issuance of a permit where:

- (i) There is a practicable alternative to the proposed discharge that would have less adverse effect on the aquatic ecosystem, so long as such alternative does not have other significant adverse environmental consequences; or
- (ii) The proposed discharge will result in significant degradation of the aquatic ecosystem . . . ; or
- (iii) The proposed discharge does not include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem; or
- (iv) There does not exist sufficient information to make a reasonable judgment as to whether the proposed discharge will comply with these Guidelines.

40 C.F.R. § 230.12(a)(3). As discussed below, this permit application fails to meet all four of these regulatory criteria. Most notably, there exist multiple alternatives to the I-73 project as proposed that are not only practicable, but preferable from both an environmental and economic standpoint. And, the I-73 project's impacts have yet to be fully analyzed and addressed.<sup>2</sup> Accordingly, the Corps cannot lawfully permit this project.

**A. SCDOT's Proposal Is Not the Least Environmentally Damaging Practicable Alternative.**

The Corps must deny a Section 404 permit "if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences." 40 C.F.R. § 230.10(a). An alternative to discharge to a wetland "is practicable if it is available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose." 40 C.F.R. § 230.10(a)(2). The Corps and EPA have explained in a Regulatory Guidance Letter that "the proposed discharge . . . must represent the *least environmentally damaging practicable alternative* in order to comply with the alternatives analysis requirement of the Guidelines[.]" RGL 92-2, Water Dependency and Cranberry Production, June 26, 1992 (emphasis added).

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<sup>2</sup> Our previous comments on this project discussed many of these same issues and are incorporated herein by reference.

Where a discharge is proposed for a wetland or other special aquatic site, all practicable alternatives to the proposed discharge that do not involve a discharge to the wetland “are presumed to have less adverse impact on the aquatic ecosystem, unless clearly demonstrated otherwise.” 40 C.F.R. § 230.10(a)(3). In addition, if the activity associated with a discharge to a wetland does not require access or proximity to or siting in a wetland (*i.e.*, is not “water dependent”), practicable alternatives that do not involve wetland sites “are presumed to be available, unless clearly demonstrated otherwise.” 40 C.F.R. § 230.10(a)(3).<sup>3</sup>

#### 1. Fundamentally Flawed Purpose and Need

To implement the Guidelines properly and identify the least environmentally damaging practicable alternative, the Corps must begin by setting forth a correct statement of a project’s “basic purpose.” *See* 40 C.F.R. § 230.10(a)(3); 33 C.F.R. Part 325, App. B(9)(b)(4). The Corps has explained that: “It is only when the ‘basic project purpose’ is reasonably defined that the alternatives analysis required by the [404(b)(1)] Guidelines can be usefully undertaken by the applicant and evaluated by the Corps.” U.S. Army Corps of Engineers, Permit Elevation, Old Cutler Bay Associates, at 6 (Sept. 30, 1990). Courts have agreed that determining the project’s purpose is “central” to the Corps’s analysis, as it dictates both the range of practicable alternatives and the applicant’s burden of proof. *See Nat’l Wildlife Fed’n v. Whistler*, 27 F.3d 1341, 1345 (8th Cir. 1994).

Although the Corps must take the applicant’s goals and purposes into account, *Louisiana Wildlife Fed’n v. York*, 761 F.2d 1044, 1048 (5th Cir. 1985), it is not bound by the applicant’s stated purpose. Rather, the Corp’s regulations provide that “the Corps will, in all cases, exercise independent judgment in defining the purpose and need for the project from both the applicant’s and the public’s perspective.” 33 C.F.R. § 325, App. B(9)(b)(4). Exercise of the Corps’ independent judgment ensures “an applicant cannot define a project in order to preclude the existence of any alternative sites and thus make what is practicable appear impracticable.” *Sylvester v. U.S. Army Corps of Engineers*, 882 F.2d 407, 409 (9th Cir. 1989). Unfortunately, the JPN shirks this responsibility, impermissibly allowing SCDOT to do so here.

The Corps adopts essentially the same contrived purpose and need statement provided in the Final Environmental Impact Statements (“FEIS”) for the I-73 project. According to the JPN, the Corps has defined the overall project purpose as follows: “The overall purpose of the I-73 project in South Carolina is to provide an interstate link between the I-73/I-74 Corridor in North Carolina to the Myrtle Beach region in South Carolina, to serve residents, businesses, and travelers while fulfilling congressional intent in an environmentally sensitive manner.” JPN at 8. In addition, the JPN identifies the “needs” to be fulfilled by the project as “system linkage” and “economic development.” It further articulates “secondary needs,” which differ depending on the portion of the road being analyzed. For the Northern Segment, they include tourism access

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<sup>3</sup> The Guidelines “couple a general presumption against all discharges into aquatic ecosystems with a specific presumption that practicable alternatives to the fill of wetlands exist.” *Hough v. Marsh*, 557 F. Supp. 74, 83 (D. Mass. 1982). “[A]n applicant . . . must rebut both of these presumptions in order to obtain a permit.” *Bersani v. Robichaud*, 850 F.2d 36, 39 (2d Cir. 1998).

and improved safety on existing roads. But, for the Southern Segment, they consist of facilitating hurricane evacuation from the coast and relieving local traffic congestion. The JPN also identifies a secondary need for multimodal planning along the whole road. JPN at 8-9.

The stated project purpose – to build an interstate – essentially restates the specific project design desired from the outset by the transportation agencies, rather than identifying the primary underlying *purpose* of the project. As such, it is insufficient to support the identification and permitting of the least damaging practicable alternative that meets the *underlying* purpose of the project as required under Section 404 of the Clean Water Act. To make matters worse, secondary needs are included in a combination that reinforces the desired outcome of a new-location freeway. The purpose and need for the project cannot lawfully be defined in a way that mandates a new alignment corridor and precludes the consideration of upgrading an existing highway corridor. Consistent with Congressional intent, as noted above, the level of upgrade may or may not be to full Interstate standards. And, by including a long list of primary and secondary needs, which are then narrowly defined in terms of how they might be met, the purpose and need statement further precludes the consideration of a full range of reasonable alternatives. Moreover, that the same project is proposed to fill different needs north and south of I-95 calls into question whether the “needs” are genuine deficiencies, or simply presumed benefits of the preferred alternative.<sup>4</sup>

To ensure consideration of a reasonable range of alternatives, and the eventual identification of the least damaging practicable alternative, it is essential that the project purpose be stated neutrally and without an artificial level of specificity. Accordingly, we respectfully suggested in previous comments that the basic purpose of the project could be properly articulated as follows: “To provide increased highway capacity to serve residents, businesses and tourists traveling between I-95 and the Myrtle Beach area in a fiscally realistic and environmentally responsible fashion.” Consistent with this suggestion, we continue to recommend that several important changes be made to the stated project purpose and need:

- Endpoint at I-73/74 Corridor in North Carolina Is Incidental to Fundamental Purpose. As the FEIS reflects, the basic purpose of the project is to serve the approximately 10 million visitors who travel to the Myrtle Beach area via automobile each year. Virtually none of these tourists have the North Carolina I-73/74 corridor as their point of origin or destination.<sup>5</sup> Moreover, requiring a new road with an endpoint at the I-73/74 precludes alternatives such as upgrading the corridor itself, that consist of improvements to existing roads. Thus, the reference to this location should be eliminated from the purpose and need statement.

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<sup>4</sup> Our previous comments explained our concerns regarding improper segmentation of the project during the NEPA phase. We continue to adhere to the views expressed therein, but are pleased to see that despite the separate environmental study processes, the JPN indicates that its analysis will consider the northern and southern portions as if they were authorized under a single permit for purposes of the Corps’s review.

<sup>5</sup> In fact, the majority of Myrtle Beach area visitors would not even pass through this location, and, instead likely use I-95, based on the highly diverse list of states of origin by percentage reflected in a recent Chamber of Commerce survey. Those who *do* pass through Rockingham and prefer to stay on an interstate-type highway can use the I-74/US 74 corridor to reach I-95 and then continue to Myrtle Beach on one of the multiple existing highways. <http://www.myrtlebeachareachamber.com/research/docs/2007%20Stay%20&%20Play%20survey.pdf>

- The Many and Varying Listed Needs Artificially Restrict Consideration of Reasonable Alternatives. The articulation of a project purpose and need that is too specific constrains the evaluation of reasonable alternatives. Listing seven objectives that all must be satisfied to meet the project purpose and need unnecessarily restricts the alternatives analysis. Importantly, establishing a requirement that all seven of these project needs must be satisfied by each of the alternatives to be considered significantly reduces the possibility of selecting a less damaging practicable alternative that satisfies the basic project purpose. For example, the use of existing highway corridors for all or part of the I-73 route is less likely if the corridor must accommodate potential future rail lines, a highly unlikely prospect especially for the sparsely populated Northern Segment, with any future service connecting to Amtrak making use of a revitalized existing line. Moreover, the statement of purpose and need must address the entire project. The differing “secondary needs” assigned each segment artificially constrain the alternatives analysis.
- Listed Needs Not Fundamental to Project Purpose. Closely related, several of the seven listed project needs are superfluous, contradictory or unrealistic. For example, it is far from clear that the interstate, by speeding tourists to the beach, will spur significant economic development in Marlboro, Dillon and Marion counties, especially if the route does not closely serve existing population centers. It is also uncertain that hurricane evacuation will be substantially enhanced, especially if the economic development objective of the highway succeeds in substantially increasing tourism and other economic activity in Myrtle Beach. Also, as noted in prior SELC comment letters, increased highway capacity is far from the most important factor in shortening evacuation times. Further, the multimodal planning objective, while laudable in concept, does not fit the circumstances here. There is no reasonable prospect for a new rail corridor between Myrtle Beach and the existing and planned passenger rail corridors in the foreseeable future. Thus, this “need” artificially restricts consideration of narrower corridors with less impact, including the prospect of using existing highway corridors for all or part of the I-73 route.
- Needs Must Be Carefully Evaluated Rather Than Relying on Assumptions. The underlying needs must be carefully evaluated rather than relying on mere assumptions to justify the project. As to the capacity and economic development rationale, it is noteworthy that there are several existing four-lane highways into the Grand Strand area, which is already one of the fastest-growing metro areas in South Carolina and the entire United States. These include US 17 from the north, US 17 from the south, SC 9 from the northwest, and US 501 from the west. (See existing corridor map, Attachment 2.) The additional economic development to be spurred by the interstate designation must be compared to the cost of the project and the opportunity-cost of not spending the same funds on other economic development initiatives in Myrtle Beach or in less prosperous areas of the state. This analysis is especially important given the current underutilization of the Conway Bypass and Carolina Bays Parkway, which already has resulted in a vastly disproportionate amount of highway construction in Horry County relative to other areas in the state. While much of this has been locally funded, it is not likely that the poor, rural counties northwest of

Horry will adopt local sales taxes for the benefit of the tourism industry in Myrtle Beach.

- As to increased hurricane evacuation capacity, it is essential that SCDOT carefully test this assumption that an additional interstate connection would be the most cost-effective method of increasing hurricane preparedness. Improved efficiency on existing evacuation routes (including US 501, already 4 lanes, US 521, and SC 9, which include four-lane segments being extended over time to reach I-95, as reflected in Attachment 2), earlier evacuation, improved communication and adequate personnel to direct traffic must all be considered as more efficient and cost-effective options to a \$2.4-billion interstate. According to a comprehensive study for the U.S. Army Corps of Engineers, road infrastructure capacity is listed fifth in a list of the most important factors in effectiveness of hurricane evacuation following the other common sense strategies listed above. South Carolina Hurricane Evacuation Restudy, Transportation Analysis, April 2000 PBS & J. That the existence of an interstate connection is not a panacea for hurricane evacuation was vividly evidenced by the massive traffic jam on I-26 leaving Charleston during Hurricane Hugo in 1989. In short, maximizing the utility of the network of existing roads is key to addressing both daily traffic and the very occasional need for an evacuation.
- Elements of the Purpose and Need Statement Conflict. Certain stated project purposes are somewhat in conflict. The economic development rationale for the project will result in an even greater number of visitors and residents, essentially swallowing the added evacuation capacity created by I-73. The same is true concerning the purported improvement to congestion on local roads, and the induced growth and influx of tourist traffic resulting from the anticipated economic development would add traffic to local roads. The purpose and impacts of the I-73 project must be carefully considered before alternatives are identified to address the actual transportation need with the least environmental impact.
- Misleading Project Description. The JPN touts the proposed I-73 as a “national project” running from South Carolina to Michigan, as well as a national transportation priority. JPN at 5-6. As noted in the FEIS and in our previous comments, however, because the project’s purpose can be achieved without constructing a new corridor, other states have decided to upgrade their existing highway corridors rather than proceeding with the plan described in the JPN. In fact, the Congressional authorization for this project does not mandate an interstate, but instead allows for other corridor improvements as are being planned in Michigan and Ohio for their sections of the corridor. (See Attachment 8, p. 1-2.)

As federal policy increasingly seeks to modernize and diversify our transportation infrastructure, federal transportation dollars are increasingly directed towards projects that leverage the value of our existing roads, revitalize urban and rural communities, and promote economic development, energy conservation, and environmental stewardship. Because the I-73 project, as currently proposed, does not meet those goals, it is at best uncertain that it will be considered a sufficient priority to share in any limited federal funding available through competitive programs.



In sum, the Corps's statement of purpose is overly specific and loads together a hodge-podge of different needs which artificially, and illegally, preordain a new-location interstate highway as the only possible solution.

## 2. Failure to Clearly Demonstrate Absence of Practicable Alternatives

As previously noted, an applicant for a Section 404 permit for a non-water-dependent project such as this must "clearly demonstrate" that no practicable alternatives exist that do not require a discharge into wetlands or other special aquatic sites. 40 C.F.R. § 230.10(a)(3). See *Shoreline Assocs. v. Marsh*, 555 F. Supp. 169 (D. Md. 1983), *aff'd*, 725 F.2d 677 (4th Cir. 1984). "[T]he applicant and the [Corps] are obligated to determine the feasibility of the least environmentally damaging alternatives that serve the basic project purpose. If such an alternative exists . . . the CWA compels that the alternative be considered and selected unless proven impracticable." *Utahns for Better Transp. v. U.S. Dept. of Transp.*, 305 F.3d 1152, 1188-1189 (10th Cir. 2002). Under the CWA, "the test is whether the alternative with less wetlands impact is 'impracticable,' and the burden is on the Applicant . . . with independent verification by the [Corps], to provide detailed, clear and convincing information *proving* impracticability." *Id.* at 1186 (emphasis in original).

The impermissibly circumscribed statement of the project purpose forecloses the consideration of obvious alternatives that must be considered to satisfy Section 404. These would consist of various combinations of upgrades to the existing highway network to improve capacity and safety, and support economic development, that would not involve the construction of an interstate in an entirely new location. In addition, highway upgrades short of a new interstate must be considered. Such alternatives could easily meet the identified primary needs of system linkage and economic development. In addition, they are compatible with the identified secondary needs of tourism access, improved safety and multimodal planning.

In fact, such alternatives could meet these identified needs more effectively, and at a lower cost and impact, than the three new-location interstate alternatives considered in the DEIS. For example, safety improvements could be targeted to existing dangerous primary and secondary roadways which locals will continue to travel, especially if I-73 were to be a toll road, which the interstate will do nothing to improve. Tourism access could be promoted by improvements to major state highways such as SC 9, SC 38 and US 521. Interstate travelers could be routed from the new section I-74 in North Carolina east of Rockingham to I-95 South to the Southern project. Of the 10 states contributing the most visitors to the Grand Strand, only Ohio residents, and some North Carolinians, would likely pass through Rockingham on I-73/74 rather than using I-95 or some other interstate corridor. (DEIS 1-28) In other words, the Corps must take into account in its own independent analysis that most Myrtle Beach tourists would never even use the Northern Segment of I-73.

By law, the Corps must not only consider, but require SCDOT to submit clear evidence disproving, practicable alternatives such as improvements to existing roads. It is unfortunate that the Corps does not have the benefit of an EIS analyzing a full range of reasonable alternatives to assist in this process. The inadequacy of the FEISs, however, does not excuse the Corps from its independent obligation to analyze and select the less-damaging alternatives that the CWA and its implementing regulations presume are available. According to the 404(b)(1) Guidelines, "the

analysis of alternatives required for NEPA environmental documents, including supplemental Corps NEPA documents, will in most cases provide the information for the evaluation of alternatives under these Guidelines.” 40 C.F.R. § 230.10(a)(4). But, where the NEPA documents “may not have considered the alternatives in sufficient detail to respond to the requirements of these Guidelines[,]” “it may be necessary to supplement these NEPA documents with this additional information.” *Id.* Accordingly, where the existing NEPA documents do not contain sufficient information, the Corps has authority to require SCDOT to provide the additional information needed for “an informed, considered analysis of the environmental impact” of project alternatives.” *Lakewood Assocs. v. United States*, 45 Fed. Cl. 320, 332-33 (Ct. Cl. 1999). For the reasons detailed in our previous comment letters, we believe the required analysis could occur most efficiently and appropriately through a new or substantially revised EIS. At a minimum, however, the Corps should require SCDOT to submit the information necessary for a more complete analysis.

### **Failure to Consider Upgrades to Existing Corridors**

As noted in the FEIS and in our previous comments, other states have constructed sections of I-73, and many other interstates, by upgrading existing highway corridors. The EIS process for I-73 in South Carolina has been artificially constrained, however, to prohibit meaningful consideration of alternatives that would consist largely of upgrading the SC 38/US 501 or SC 9 existing major highway corridors, or constructing a connector highway from I-74 to SC 22 east of I-95. The JPN follows suit. The Corps merely summarizes the flawed analysis contained in the FEIS rather than conducting the evaluation of practicable alternatives required under the CWA to ensure selection of the least environmentally damaging option. As we explained in our previous comments, the FEIS’s attempt to defend the new alignment only approach, by asserting that the CAT tool runs established that existing alignment alternatives would involve greater wetland fill, is unavailing. And, even SCDOT’s own modeling shows that there exist less damaging practicable alternatives making use of existing corridors.

The CAT tool computer modeling exercise, however, is only a rough cut tool based on imperfect and out-of-date NWI map data, as acknowledged in the FEIS itself. For example, the difference in wetland fill for Alternative 3 at the DEIS versus FEIS stage drops from 384 to 313 acres, based on a 400-foot corridor. Also, many of the wetlands in the study area, especially near existing highway corridors, are highly altered and have been compromised in their functions and values, often more recently than the NWI data was collected. In contrast, Alternative 3 crosses and fragments a number of remote high-quality wetlands, including Lake Swamp, that would not be impacted by an existing corridor alternative. Especially given the potential margin of error, rough estimates of potential wetland loss cannot preclude meaningful consideration of a corridor upgrade alternative.

Even the CAT tool itself identified a route along an existing highway corridor, SC 9, as having the least direct impacts to wetlands based on a preliminary model run. This is the case if both the Northern and Southern I-73 projects are considered as a whole, as must be the geographic focus for the first time in connection with this permit request, in contrast to the two EIS documents. See FEIS, p. 4-94. Using the same CAT tool and suitability grid that was used to develop alternatives for the Southern project, a model run was conducted at the request of the

South Carolina Department of Natural Resources for the entire corridor. The result is a route that closely follows SC 9 from the North Carolina border and then connects to a point along the Conway Bypass near Myrtle Beach. A map depicting this result, Attachment 4, vividly illustrates this, with the darkest areas forming corridor options having the highest level of aquatic impacts avoidance. Yet, in connection with the Southern project EIS, the SCDOT prematurely eliminated from consideration this SC 9 corridor option, which the CAT tool selected using SCDOT's own methodology as having the least overall aquatic impacts for the combined project from the North Carolina state line to SC 22.

Further, the FEIS improperly used only preliminary estimates of raw wetland acreage loss, which should not be elevated to the sole relevant factor considered, in early screening to establish corridors for further study. In our EIS comments, we pointed out that new location highways generally result in an order of magnitude of greater impacts, due to fragmentation of more pristine habitat and other factors, than improvement to an existing corridor. It is only common sense, and has been well documented by scientists in sources cited in the FEIS, that, absent highly unusual circumstances, use of an existing highway corridor will have far fewer environmental impacts overall than a "greenfield" route. The FEISs themselves discuss at length the significance of habitat fragmentation, stream impacts and upland natural communities, as well as a host of other factors that adversely impact aquatic resources and affect the selection of the least environmentally damaging practicable alternative. Nevertheless, no detailed study was ever made of such an alternative.

In the NEPA process, it was arbitrary to propose a preferred alignment based on very preliminary estimates of the relative direct wetland fill impacts of the various routes where the range was no more than a 20% difference and other aquatic impacts and environmental and non-environmental factors strongly favored the selection of an upgrade alternative. A more comprehensive approach is necessary for the Corps to be able to assess which corridor is the "least damaging practicable alternative" for permitting purposes. As the Section 404 regulations make clear, there are many other factors beyond wetlands that must be considered when comparing impacts to aquatic resources. These include potential impacts to physical, chemical, biological impacts, special aquatic sites and human use. 40 CFR Part 230, Subparts C through F.

Focusing on the single biggest environmental impact for the project – the crossing location along the Little Pee Dee River-- the identified preferred alternative is far less preferable than a location near or along an existing major highway corridor. Not only would the proposed location bisect a Heritage Trust preserve, but it maximizes fragmentation of outstanding habitat in the vicinity of the preserve by selecting a location approximately half way between US 501 (already disturbed by a massive causeway in the flood plain) and SC 9 (also disturbed by a major highway corridor using the narrowest flood plain crossing). In contrast, SC 917 is a two-lane rural highway with a very low traffic volume, which I-73 would cross the Little Pee Dee flood plain near, but not along the same alignment. The identified preferred alternative is even more damaging because it bisects Lake Swamp, an important natural area adjacent to the Little Pee Dee River.

### **Three Upgrade Alternatives Deserve Careful Study Prior to Permitting and Certification Decisions**

Despite the urging of environmental groups and ACT team members, as explained above, the transportation agencies failed to give detailed consideration to an upgrade alternative primarily using an existing corridor, as has been successfully done in North Carolina and elsewhere. Even when the CAT tool preliminarily identified the SC 9 corridor as involving the least wetland acreage loss, the sole environmental benchmark used in the initial screening process, for the Northern and Southern Segments together. As discussed above, upgrade alternatives must be considered under any reasonable articulation of the underlying project purpose, including full upgrades to interstate status, taking a closer look at the condition of wetlands along existing corridors and project design options to minimize fill. Steps would include evaluating where frontage roads could be eliminated in favor of alternative access, or purchase of smaller “land-locked” parcels. In addition, a much narrower corridor could be studied, given that it makes no sense to route passenger rail service along a new rural interstate rather than using existing rail lines.

Beyond interstate alternatives, the Corps must consider whether non-interstate upgrades along one or more of the existing highway corridors could satisfy the basic project purpose with less aquatic impacts. So far, the transportation agencies have refused to do this, instead wearing the same blinders as political and tourism industry proponents who claim that only a new interstate will suffice to address anticipated future needs, much of which, they claim, will be created by the project itself. To move past the narrow approach embodied in the EISs and the current permit application, even in the face of daunting financial challenges, we have retained a transportation consultant to prepare a detailed report (Attachment 8), outlining three feasible upgrade alternatives.

The report, “The Grand Strand Expressway: An Alternative to the Proposed I-73 to the Myrtle Beach Area,” was prepared by the transportation consulting firm Smart Mobility, Inc., which has critiqued and proposed alternative solutions for highway projects nationwide, including major-capacity projects for which viable alternatives were pursued. The upgrades outlined by Smart Mobility would not meet interstate standards, but instead continue to invest in improvements to one or more existing corridors to provide an “expressway” level of service. Any of these alternatives would be far less expensive, and less damaging, than the preferred alternative. Because of the much greater interest in and potential need for capacity improvements between I-95 and SC 22, the report focuses on upgrade alternatives to the Southern Segment. The same concept could be applied to extend these upgrades on the existing road network in the Southern Segment.

By way of background, federal, state and local money has funded improvements, large and small, to the 38/501 corridor and SC 9 continuously for over 20 years. Over time, tens of millions have been invested to allow SC 9 to be widened to four lanes from Little River to Green Sea in Horry County. SC 22, the Conway Bypass, and proposed terminus of I-73 was completed in 2001 at a cost of \$390 million. US 501, today, has access to SC 22 via a massive interchange and could easily become part of an expressway along the SC38/US501 corridor. In addition, portions of SC 38 in Marlboro County have been upgraded, widened and the SC 38/US 501

interchange constructed in Marion County. SC 501 is four lanes from SC 38 to SC 22 and continues as a four lane road to Myrtle Beach. These road improvements and upgrades have cost many hundreds of millions of taxpayer dollars and are planned to continue, whether or not I-73 is constructed.

SCDOT's *Ten Year Highway Construction Projects 2001-2010* lists SC 9, SC 38, US 501 to SC 22 improvement projects totaling almost \$ 60 million. These projects have been completed in segments, as funds became available, from a SC 9 \$1 million safety and signal project in 2005 to an \$8 million bridge replacement completed in 2007. One of the larger 38/501 projects that changed the corridor just east of I-95 from a rural road to an expressway was the 38/501 interchange project in Marion County completed in 2007. SC 38 was upgraded and widened to four lanes from the Dillon County line and an interchange built with US 501 at a cost of \$31 million according to SCDOT. Over \$100 million will have been spent on improvements to the 38/501 corridor from 2001 to 2012.

The US 501 Aynor overpass, one of the Horry County RIDE II (Road Improvement and Development Effort) projects now under construction is estimated to cost \$32.2 million when completed. As part of this project, SCDOT's *Ten Year Highway Construction Projects* lists two US 501 bridge replacement projects near the Aynor overpass at a cost of \$10 million. Continued improvements at the same spending level can bring the entire route from the North Carolina line to SC 22 up to standards that will be as beneficial as an interstate at significantly less cost.

The first of the three upgrade alternatives, building on the ongoing improvements to the SC 38/501 corridor, is perhaps the most attractive option due to the fact that it is already a four lane corridor with many attributes of an expressway or even interstate design along much of the route. Not surprisingly, this alternative is also the least expensive, with an initial rough estimate of under \$150 million dollars to meet expressway standards. It is also the closest, and most heavily traveled, existing corridor to the preferred alternative and has the added advantage of most easily serving the needs of travelers approaching from the north, west or south.

In fact, the South Carolina Strategic Corridor System Plan, which is part of the federally-required Long Range Transportation Plan adopted May 14, 2008, contemplates continued upgrades to this corridor as a key component of the State's long term mobility strategy. (See Attachment 10, also at <http://www.scdot.org/inside/multimodal/pdfs/StrategicCorridorPlan.pdf>). The Plan specifically recognizes that these upgrades should be coordinated with whether I-73 is constructed, p. 102, underscoring the recognition by SCDOT that the project may never be constructed and that the ongoing and planned future upgrades to the SC 38/US 501 serve as a viable substitute to meet safety, economic development, evacuation and tourism goals, p. 4., and meet projected Level of Service (LOS) needs for 2030, p. 110-12.

The wetlands along this corridor have been substantially degraded by development, pine plantation conversion and other impacts. In addition, it would make use of the existing four lane divided causeway across the Little Pee Dee River floodplain. No new stream systems would be fragmented, and stream impacts would be incremental given the use of existing crossings, only some of which would have to be widened. Thus, an upgrade to the 38/501 corridor appears to be the least damaging practicable alternative that would meet the underlying project purpose.

The second upgrade alternative would be to continue to widen the SC 9 corridor to a four lane highway, which is already a four lane divided highway from Myrtle Beach about 40% of the way to I-95. This alternative is estimated to cost about \$430 million, which is well under half of the cost of the preferred alternative Southern Segment. While the CAT run identified this corridor as the least damaging for the project overall, it would involve more new capacity, meaning more impervious surfaces, and potentially greater stream impacts, and more wetlands fill in areas that are less impacted, than along the SC 38/US 501 corridor. This corridor would likely appeal to those traveling from the north and west, including those coming in on I-74 in North Carolina, especially those traveling to destinations north of downtown Myrtle Beach.

The third alternative would involve the most highway capacity upgrades, either using existing two lane rural highways from US 74/I-74 near Boardman, North Carolina, connecting to the existing four lane section of SC 9 and continuing to SC 22 at the same point where the proposed I-73 alternative would terminate. This routing would have the advantage of building on North Carolina's investment in I-74, minimize the need for two parallel interstates running on each side of the state line (see Attachment 1), and serve both North Myrtle Beach destinations, by using SC 9, and other destinations, using SC 22. While cooperation with North Carolina would be required, the same is true for the preferred alternative, the Carolina Bays Parkway extension and interstate projects across the country. An initial cost estimate indicates that this would cost about \$320 million, one quarter of the Southern Segment. From a Section 404 perspective, impacts would be reduced compared to the preferred alternative because of the use of I-74 for all but the last 34 miles, versus 75. In addition, the two lane highways along this route largely ride a watershed divide, minimizing aquatic impacts.

#### **Alternative 7 is Preferable to Alternative 3 Of the New Location Interstate Options**

We urge the agencies to give robust consideration to the three corridor upgrade alternatives set out above. The permit application, however, does not even propose use of the least damaging new location interstate alternative. Our extensive comments on the DEIS and FEIS as to the overall superiority of Alternative 7 to Alternative 3 for the Southern Project apply with equal force in the permitting context. Alternative 7 follows existing highway corridors for more miles than any of the other alternatives studied in detail. Consequently its overall impacts are reduced because of the reduced amount of habitat fragmentation and the number of acres of wetlands in compromised condition versus those in more pristine condition.

As to direct water resource impacts alone, the FEIS reveals that the difference in potential wetland acreage loss is more than offset by the stream impacts differential. While there is a less than 20% difference as to wetlands, based on highly preliminary figures for an artificially wide corridor, there is an approximately 50% increase in stream impacts for Alternative 3 compared to Alternative 7. As set out in the FEIS, p. C-86, the linear feet of perennial stream impacts is 15,443 for Alternative 3 versus 10,098 for Alternative 7 and the number of stream crossings is 48 versus 32. Nowhere does the FEIS explain why wetland aquatic impacts should trump stream impacts, particularly given the disparity in the differential, in determining the least damaging alternative from an aquatic resources perspective.

In addition, from the perspective of minimizing the number of relocations, maximizing job creation, overall economic development, environmental justice and other factors, the Southern Segment FEIS confirms that Alternative 7 is a preferable alternative. Beyond simply cataloguing the differences between the various alternatives, the FEIS is devoid of reasoning to explain why the favorable factors identified as to Alternative 3 trump those identified as favorable as to Alternative 7. Thus, it fails to support a determination that a permit and certification should be issued for this alternative.

### **The Agencies Must Seriously Consider the No-Build Alternative**

Even if its anticipated environmental impacts were to be ignored, SCDOT's application and the analysis summarized in the JPN make far from a compelling case for the construction of a new interstate, particularly the I-73 Northern project. The I-73 project is currently projected to cost South Carolina \$2.4 billion dollars, would be the most expensive road in the State's history. The FEIS concludes that, due to the severe financial constraints of SCDOT, the I-73 project is unlikely to be constructed without being a toll road. FEIS, p. 1-29. The FEIS further reveals that a toll road might result in a decrease in use of as much as 50 to 70 percent. FEIS, p. 1-30. Without sufficient traffic volume, the ability to meet the identified purposes and needs for the project would be substantially diminished. This raises the prospect that the "no action" alternative may be the preferred alternative to a \$2 billion dollar highway with little traffic and little demonstrated economic development outside of Myrtle Beach. SCDOT has not clearly shown otherwise.

Additionally, the following information developed during the NEPA process further supports the denial of permits for a project with the costs and impacts of this magnitude.

- The minority of travelers willing to pay a toll to use this interstate to reach the Grand Strand will save only approximately 10-15 minutes compared to using existing roads in their current condition. SCDOT had not explored how travel times could be reduced by spending the billion dollars, or a lesser sum, to improve existing major travel corridors in this part of the State. Nor has SCDOT compared travel times for those who would seek to avoid the tolls and continue to travel on I-74 in North Carolina to I-95 and then to the I-73 Southern project, or to SC 9 for those going to the North Myrtle Beach area. In fact, if interstate connectivity for tourism traffic is the primary reason for the project, an alternative should be explored that would constitute a North/South connector from I-74 to I-95 between the Maxton and Dillon areas or from I-74 directly to SC 22.) The alternatives analysis in the EISs, however, unfolded as if the parallel I-74 corridor just over the state line does not exist.
- South Carolina has one of the most dangerous highway networks in the country. No comparison is made, however, of how many accidents could be avoided and lives saved by targeting a billion dollars to improve unsafe roads in this part of the State rather than building an expensive, redundant interstate parallel to I-74, SC 9 and SC38/US 501.



- It is unfortunate that Marlboro County is losing population and losing jobs. The DEIS concedes that the interstate will not fix this problem just as I-95 has not reversed economic decline in Dillon County and along the entire I-95 corridor. A December 2009 study by RTI for Francis Marion University and South Carolina State University concludes that the I-95 has been far from a “silver bullet” solution to lack of economic opportunity including in Marion, Marlboro and Dillon counties. (See Attachment 9, SC I-95 Corridor Needs Assessment, RTI, December 2009). Illustrating this, the project’s EIS economic analysis reveals that only 500 or so full time permanent jobs will be created by the project in Marlboro County. Dividing this number into the project cost reveals that a whopping two million dollars would be spent on the highway for every new job created. Assuming the economic development rationale remains in the statement of project purpose, alternatives must be explored to put the \$1.1 billion to better use than a project that may improve the local economy by only 3% over what would otherwise be anticipated with under a no-build scenario. (Northern Segment DEIS 3-27). Given the similar demographics in Marion and Dillon counties, a similar analysis must be conducted for the \$1.3 billion dollar Southern Segment.
- The economic analysis of the project failed to calculate the economic loss of 3520 acres of farmland, as well as the reduced productivity of farmland that is fragmented by the project. These losses may substantially offset the conceded minor economic benefit of the project in rural areas. The economic value of lost time by local residents for whom the interstate serves as a barrier on a daily basis should also be calculated and offset from the anticipated gain to those travelling to Myrtle Beach for their annual vacations.

**The Proposed I-73 Route Is Not a Practicable Alternative Because Prudent and Feasible Alternatives Exist Under Section 4(f) To An Alignment Through Heritage Trust Property**

Section 4(f) of the federal transportation act prohibits the use of publically-owned parklands and historic sites for highway construction unless: (1) there is no prudent and feasible alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area . . . or historic site resulting from the use.” 23 U.S.C. § 138; 49 U.S.C. § 303(c). Due to an alignment shift during the alternatives refinement process, Alternative 3 is proposed to cross through the Vaughn Tract of the Little Pee Dee Heritage Trust Preserve. It is undisputed that this triggers a Section 4(f) determination under federal law. This analysis, which is contained in Appendix E to the FEIS, concedes that the highway would constitute a direct use of Section 4(f) resource, taking 30 acres of the Preserve. The Section 4(f) evaluation then proceeds to argue that the use is justified because Alternative 3 is “more prudent and feasible” than any of the other potential routes which do not affect the resource. FEIS, p E-8. This approach to the Section 4(f) analysis is fundamentally flawed because it misstates the required alternatives test under federal law.

The so-called 4(f) analysis merely repeats in summary fashion the reasons why the transportation agencies selected Alternative 3 as *preferable* to the other seven alternatives. It does not demonstrate as a factual matter that there is no prudent and feasible alternative to Alternative 3, which is the appropriate legal standard under 49 USC Sec. 303 (c)(1). In fact, the FEIS alternatives analysis demonstrates that most, if not all, of the eight “*reasonable* build alternatives,” as they are referred to, would be prudent and feasible options for the routing of I-73, although not the transportation agencies first choice. The approach employed here renders the Section 4(f) analysis meaningless because the preferred alternative would always pass 4(f) muster.

As stated in the FEIS, “All of the Build Alternatives satisfied the purpose and need for the project.” FEIS, p. 2-58. Although pros and cons of the various alternatives are discussed in detail throughout Chapter 2, and some are deemed “less suitable” than others, five of the build Alternatives are expressly recognized as “*viable alignments*.” FEIS, p. 2-71. In short, there are prudent and feasible alternatives and the Appendix E evaluation conflates the preference in the FEIS for Alternative 3 with the appropriate standard and proper analysis under Section 4(f). Not only are at least five other new location alternatives feasible, but upgrade alternatives must also be considered in the 4(f) analysis. This would include the three upgrade alternatives outlined in Attachment 8, which could be designed and the alignment tweaked as necessary to avoid Section 4(f) impacts to environmental and historic resources either as an expressway or a future full upgrade to interstate standards.

#### **B. SCDOT Failed to Determine the Project’s Significant Adverse Impacts to the Structure and Function of the Aquatic System**

The SCDOT has failed to demonstrate the impact that the proposed project will have on the structure and function of the aquatic system, and this error has undermined the alternatives analysis and the requirement to show that the project has avoided and minimized the direct, indirect, and cumulative impacts to the maximum extent practicable. The Guidelines require the Corps to make certain factual determinations addressing the potential short-term or long-term effects of a proposed discharge of dredged or fill material on the physical, chemical, and biological components of the aquatic environment. *See* 40 C.F.R. § 230.11. Among these factual determinations is the following provision:

Aquatic ecosystem and organism determinations. Determine the nature and degree of effect that the proposed discharge will have, both individually and cumulatively, on the structure and function of the aquatic ecosystem and organisms. Consideration shall be given to the effect at the proposed disposal site of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities.

40 C.F.R. § 230.11(e). According to the Guidelines, these factual determinations shall be used in conducting the alternatives analysis and in determining whether the proposed discharge includes all appropriate and practicable avoidance and minimization measures. *See* 40 C.F.R. § 230.11

(saying “[s]uch factual determinations shall be used in § 230.12 in making findings of compliance or non-compliance with the restrictions on discharge in § 230.10”).

The SCDOT screen process, based on rough estimates of only wetland fill as opposed to broader aquatic ecosystem consideration, and using out of date NWI maps, renders the process and conclusions in the EISs insufficient for a Section 404 permit decision. Given that the SCDOT has failed to conduct this study in the EIS process, for the new location alternatives studied, as well as potential upgrade alternatives, the existing record does not provide a sufficient basis for the issuance of a permit for the preferred alternative.

### **C. The Permit Should be Denied as Contrary to the Public Interest.**

Applications for Section 404 permits and for Section 10 permits under the Rivers and Harbors Act, are subject to the Corps’ public interest review requirements set forth at 33 C.F.R. 320.4. Under the regulation, “the decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest.” 33 C.F.R. 320.4(a)(1). This evaluation requires a balancing test, in which “[t]he benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments.” *Id.* In making this decision, the Corps must consider all relevant factors, including:

conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

*Id.* Every public interest review must also consider these general criteria:

- (i) The relative extent of the public and private need for the proposed structure or work;
- (ii) Where there are unresolved conflicts as to resource use, the practicability of using reasonable alternative locations and methods to accomplish the objective of the proposed structure or work; and
- (iii) The extent and permanence of the beneficial and/or detrimental effects which the proposed structure or work is likely to have on the public and private uses to which the area is suited.

33 C.F.R. 320.4(a)(2).

The Corps’ public interest regulations explicitly recognize the importance of wetlands to the public interest, stating that “[m]ost wetlands constitute a productive and valuable public resource, the unnecessary alteration or destruction of which should be discouraged as contrary to

the public interest.” 33 CFR 320.4(b)(1). Accordingly, the regulations provide that “[n]o permit will be granted which involves the alteration of wetlands identified as important [to the public interest] unless the district engineer concludes . . . that the benefits of the proposed alteration outweigh the damage to the wetlands resource.” 33 CFR 320.4(b)(4). See Shoreline Assoc. v. Marsh, 555 F. Supp. 169, 179 (D. Md. 1983) (upholding Corps’ denial of permit based on its finding that wetlands were important to the public interest).

Applying the Corps’ public interest analysis, the permit should be denied. The project would have one of the largest direct impacts to wetlands in decades, destroying close to 300 acres and altering scores more. It would also have significant adverse impacts to streams, destroying about four miles of riparian habitat and adversely impacting water quality, fish and wildlife, recreation, and aesthetics—all relevant factors under the Corps’ public interest regulations. The project’s proposed path not only bisects a heritage trust property, it fragments two important habitats on the upper coastal plain, the Little Pee Dee flood plain and Lake Swamp, a tributary. These adverse impacts outweigh the negligible benefit that the project might provide by shortening the travel time for interstate tourists by a mere 10-15 minutes. This is particularly true given that the highway has been proposed as a toll road, and as a result, 40-70% of the traffic originally expected to use it is projected to find an alternative route.

Additionally, the proposed project would have substantial indirect and cumulative impacts. The currently undeveloped vast areas accessible from existing SC 22 interchanges with Highways 90, 905 and 701 appear to have the highest potential for attracting growth, rather only “limited potential.” Further fueled by the new interstate, this development will extend far beyond the interchanges and include residential and commercial development of many types in addition to “vehicle-based services such as hotels, fast food, and gas stations on local roads that have interchanges with SC 22”. In short, the interstate will facilitate land use changes on a vast scale throughout Horry County over the useful life of the project. In fact, such impacts have been incorporated into the statement of purpose and need, to stimulate additional development.

The result of this acceleration of development throughout the area will be additional habitat fragmentation, further loss of endangered, threatened and rare species, likely extirpation of a coastal black bear population, water quality degradation and reduced opportunities for traditional outdoor recreational activities such as hunting and fishing. In particular, careful attention must be paid to the black bear population in Horry County which is already profoundly adversely affected by increased development, resulting in decreased habitat and fatal collisions along area highways. In fact, the interstate may well be the last nail in the coffin for the long term viability of this population. To comply with the CWA and Section 404 Guidelines, these clearly foreseeable impacts must be thoroughly explored and taken into account in the permitting process.

The public interest evaluation should also factor in the huge cost of the project, the plans to continue to upgrade several highway corridors into Myrtle Beach and the fact that few jobs will be created in depressed areas. These arguments, and others which address broad public interest considerations, are set out in detail above in connection with discussion of the No Action alternative.

**D. The Proposed Mitigation Package Fails to Satisfy the CWA and Was Developed Without Reference to the Applicable Rule**

1. The JPN Provides Insufficient Detail to Fully and Meaningfully Comment on the Mitigation Package

As an initial matter, the Joint Public Notice (JPN) does not provide sufficient detail regarding the proposed mitigation package. The Corps regulation on this issue, which has the force of law, states:

For an activity that requires a standard DA permit pursuant to section 404 of the Clean Water Act, the public notice for the proposed activity must contain a statement explaining how impacts associated with the proposed activity are to be avoided, minimized, and compensated for. . . . *The level of detail provided in the public notice must be commensurate with the scope and scale of the impacts.*

33 C.F.R. § 332.4(b)(1) (emphasis added). The JPN simply does not contain sufficient information on the mitigation package in light of the scope and scale of this project, which involves impacts to significant aquatic resources. Moreover, the FEIS is similarly lacking. As discussed in our previous comments, the FEIS proposed only a procedure, in concept, for how mitigation credits might be determined and applied at a later date. There is not even any indication in the FEIS of the magnitude of mitigation that might be achievable, or the type of mitigation that will, or should, ultimately be selected (preservation versus enhancement versus restoration). In short, there is no explanation of how the identified mitigation sites will fully compensate for all of the aquatic impacts of the I-73 project.

The JPN and conceptual mitigation plan fail to disclose, for example, how SCDOT and Corps selected the proposed mitigation sites, what standards and criteria will be used to determine whether then plan appropriately compensates for lost aquatic functions and values, and what adaptive management measures will be used to manage risks inherent in the restoration and enhancement activities proposed. The documents also lack baseline information about the current state of the impacted watershed and the aquatic resource needs to be fulfilled through mitigation. Without this information, the available materials cannot provide reasonable assurance that the impacts for the I-73 project will be adequately mitigated, nor can the public adequately comment on the proposal.

2. The Corps and SCDOT Ignored the Applicable Law in Developing the Mitigation Package.

On April 10, 2008 the EPA and the Corps issued a Final Rule on Compensatory Mitigation for Losses of Aquatic Resources under section 404 of the Clean Water Act. *See* 73 Fed. Reg. No. 70, 19,594-19,687 (Apr. 10, 2008) (codified at 40 C.F.R. pt. 230.91 and 33 C.F.R. pt. 325 and 332) (hereinafter referred to as the “Rule”). The Rule applies to all permit applications submitted after its effective date of June 9, 2008. On October 18, 2010, the District adopted a new Guidance document to assist in implementing the Rule. *See* Corps, Charleston District, Guidelines for Preparing a Compensatory Mitigation Plan (hereinafter “Guidelines”). The Guidelines supplant the 2002 Standard Operating Procedure (“SOP”) on which the District

previously relied in implementing the binding, nationwide regulations governing the Section 404 permitting program. Id. at 1.

Nevertheless, the SCDOT appears to have ignored both the Rule and its current Guidelines in developing a mitigation package for its proposal. According to the JPN, the Corps used the 2002 SOP to assess the project's impacts and the number of wetlands and stream mitigation credits required to address those impacts. The JPN makes no mention of the new Rule or the District's current Guidelines. Because the 2002 SOP was intended for smaller projects, relying on it as the District sole guide would have been inappropriate in any event. More importantly, the District cannot ignore the Rule, a binding nation-wide regulation, or its own decision to supplant the 2002 SOP with its current Guidelines.

The Corps provided notice of SCDOT's permit application in January 2011, well over two years after the Rule's effective date, and also after updating its own Guidance. It is not only unlawful, but wholly arbitrary to ignore the applicable law and current Guidelines simply because the agencies agreed to use the SOP at a 2007 inter-agency coordination meeting cited in the JPN. The JPN does not explain why the SOP methodology was selected at the 2007 meeting and makes no effort to justify continued reliance on superseded local guidance, rather than the applicable Rule, in 2011.

The Rule and the District's Guidelines contain specific requirements governing the type of mitigation permissible, the information a conceptual mitigation plan must contain, and determination of mitigation credits. The JPN and mitigation materials we have accessed thus far do not meet the applicable requirements. As a result, the documents are fundamentally flawed and cannot be relied on in support of a permit.

In revising its conceptual plan, SCDOT, and the Corps, should take note that, if they wish to use the mitigation approach outlined in the Conceptual Mitigation Plan where the permit holder is responsible, they must provide additional information and rigorous scientific analysis to show that the proposal will fully and successfully compensate for the harm done to the Great Pee Dee River Watershed. The new rule establishes a hierarchy of preferred mitigation methods, and neither the JPN nor the supporting materials contains information necessary to support the permittee-responsible plan proposed. Under the Rule, use of mitigation banks within the same watershed is the preferred approach unless there are insufficient credits or the mitigation-banking preference is overridden by a showing that "a permittee-responsible project will restore an outstanding resource based on rigorous scientific and technical analysis." 33 C.F.R. § 332.3(b)(2).

In-lieu fee, mitigation, if available, likewise "is generally preferable to permittee-responsible mitigation" and should be "give[n] preference," absent a rigorous scientific analysis showing the permittee-responsible plan will restore outstanding resources (and also taking into account any showing that a permittee-responsible project would meet performance standards more quickly than credits under an in-lieu fee program would be fulfilled). Id. §332.2(b)(3). The District's Guidelines therefore provide that a conceptual mitigation plan "must include information about the availability of mitigation credits within the same watershed as the proposed project." Guidelines at 14. The documents prepared for the project omit this and other

necessary information and do not justify limiting the required mitigation to that currently proposed.

### 3. The Mitigation Package Is Inadequate

Even with the limited information provided, we must register strong concerns about what SCDOT has proposed thus far. As discussed in more detail below, the conceptual mitigation plan is inadequate to fully compensate for the losses attributable to a 75-mile highway that fragments important habitats and requires the filling of wetlands and streams across four South Carolina counties, and parts of two counties in North Carolina. Due to its scale alone, the project will have one of the greatest wetlands impacts of any the Corps has permitted in South Carolina. And, due to the location of the chosen “greenfield” corridor, many of the losses will consist of high value aquatic sites and outstanding resources.

The mitigation identified thus far is simply not commensurate with these impacts. Whether the Rule and current District Guidelines, or even the 2002 SOP, is applied, a great deal more is required to meet the CWA’s requirement of “no net loss” of wetlands. The Rule makes clear that SCDOT must correct several serious deficiencies in the conceptual mitigation plan and provide additional information before the Corps could permit this project. Consequently, although the following concerns would prevent issuance of a permit even absent the new Rule, we have framed our suggestions in light of the current legal requirements.

#### a. Watershed Approach

One of the key aspects of the new Rule is the establishment of a watershed approach to mitigation. According to the Rule:

The district engineer must use a watershed approach to establish compensatory mitigation requirements in DA permits to the extent appropriate and practicable. Where a watershed plan is available, the district engineer will determine whether the plan is appropriate for use in the watershed approach for compensatory mitigation. In cases where the district engineer determines that an appropriate watershed plan is available, the watershed approach should be based on that plan. Where no such plan is available, the watershed approach should be based on information provided by the project sponsor or available from other sources. The ultimate goal of a watershed approach is to maintain and improve the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites.

33 C.F.R. § 332.3(c)(1).

There is no indication that SCDOT has used a watershed plan to determine where to mitigate the impacts of this project. Given the large scale of this project, the Corps should require a robust watershed analysis for purposes of devising a compensatory mitigation plan and a far greater amount of mitigation. Regardless of whether the Corps develops a watershed plan, the project mitigation plan must include information about the aquatic resource needs of the



watershed at a level of detail commensurate with the impacts of the project. Unfortunately, the Corps and SCDOT do not appear to have collected detailed or baseline information or considered the watershed's resource needs. While the JPN indicates the District and applicant have decided fewer, larger-scale projects would better compensate for lost functions and values than numerous small projects, simply favoring bigger parcels is not a true watershed approach. Under, the Rule, the Corps must carefully evaluate resource needs and strategically locate mitigation to best meet those needs.

Specifically, the Rule provides that:

Considerations. (i) A watershed approach to compensatory mitigation considers the importance of landscape position and resource type of compensatory mitigation projects for the sustainability of aquatic resource functions within the watershed. Such an approach considers how the types and locations of compensatory mitigation projects will provide the desired aquatic resource functions, and will continue to function over time in a changing landscape. It also considers the habitat requirements of important species, habitat loss or conversion trends, sources of watershed impairment, and current development trends, as well as the requirements of other regulatory and non-regulatory programs that affect the watershed, such as storm water management or habitat conservation programs. It includes the protection and maintenance of terrestrial resources, such as non-wetland riparian areas and uplands, when those resources contribute to or improve the overall ecological functioning of aquatic resources in the watershed. Compensatory mitigation requirements determined through the watershed approach should not focus exclusively on specific functions (e.g., water quality or habitat for certain species), but should provide, where practicable, the suite of functions typically provided by the affected aquatic resource.

33 C.F.R. §332.2(c)(2). The Corps must apply these considerations to the I-73 project's massive impacts across four counties so as to meet its "ultimate goal" of "maintain[ing] and improve[ing] the quality and quantity of aquatic resources within watersheds through strategic selection of compensatory mitigation sites." 33 C.F.R. §332.2(c).

#### b. Failure to Avoid and Minimize Impacts

The JPN and other materials fail to demonstrate that SCDOT has avoided and minimized impacts to the maximum extent practicable. Compensatory mitigation is, and has always been, last resort. And, under the Corps' Guidelines for Preparing a Compensatory Mitigation Plan a mitigation plan must provide a statement demonstrating the permittee's efforts to first avoid and minimize impacts. Guidelines at 12. This statement must identify and specifically address impacts to outstanding resources (*i.e.* rare, unique, or high quality aquatic resources). *Id.* No such documentation is provided here. This violates the Rule, particularly given that the Project bisects important habitats and impacts a number of outstanding resources, including the Little Pee Dee River, a designated Outstanding Resource Water, a South Carolina Heritage Preserve, and rare habitat such as Lake Swamp.

Furthermore, as discussed above, the FEISs and other documents indicate that adverse impacts, including impacts to outstanding resources, could have been avoided and minimized, but were not. Impacts to state-protected lands and failure to select the least damaging alternative are discussed above. And, while we applaud SCDOT for moving the location of the Little Pee Dee River crossing, the FEIS fails to suggest a design for that project that would reduce the impacts of habitat fragmentation by committing to features that would enhance wildlife crossing opportunities. Such features have been used on other projects and would reduce the danger to both wildlife and motorists from collisions.

The Rule places particular emphasis on avoidance and minimization of impacts too difficult to replace resources. In particular, it adheres to an earlier Memorandum of Agreement providing that, “[i]t is important to recognize that there are circumstances where the impacts of the project are so significant that even if alternatives are not available, the discharge may not be permitted regardless of the compensatory mitigation proposed (40 CFR 230.10(c)).” The Rule further states that, “[d]uring the 404 (b)(1) Guidelines compliance analysis, the district engineer may determine that a DA permit for the proposed activity cannot be issued because of the lack of appropriate and practicable compensatory mitigation options.” 33 C.F.R. §332.1(c)(3)/230.91(c)(3); see also 73 Fed. Reg. 19619.

The I-73 impacts a number of special and difficult to replace resources. Once fragmented, habitat for the black bear and other mammals cannot be pieced back together. Similarly, should the project be allowed to degrade the Outstanding Resource Waters of the Little Pee Dee River, their pristine condition, including the current solitude, could be difficult, if not impossible, to restore. Another pristine, high value area is Lake Swamp. The Conceptual Mitigation Plan acknowledges this resource as “a coveted riparian treasure.” EBX, Section 2: Wetlands Conceptual Mitigation Plan, Joiner Bay Wetland Mitigation Site, Horry County, South Carolina at 7 (Aug. 30, 2010). It promotes the Joiner Bay site mitigation in part as an opportunity to restore acreage on a headwater contributor to tributaries that eventually flow into Lake Swamp.

While we support restoration of headwater streams, there are risks associated with the enhancement project. And, even if successful, there is no indication that improvement to waters eventually flowing into Lake Swamp could offset the more direct damage done by burying this “treasure” with wetlands fill and degrading it with polluted runoff. If a goal of the Joiner Bay plan is to protect Lake Swamp from pollution, it could be far better accomplished through other means. Further, it is important to note that the I-73 project would run within 1,500 of two properties currently protected by conservation easements held by the Nature Conservancy and tied to federal funds for wetlands protection. One is a 60-acre Wetlands Reserve Program easement in Dillon County and the other is a Lake Swamp easement, a North American Wetland Conservation Act grant match tract.

Equally important, the scale of stream-fill called for by the project is staggering. The proposal impacts over 20,000 linear feet of streams. These impacts are particularly troubling because stream mitigation is difficult to accomplish. Indeed, the Rule specifically notes streams as “difficult-to-replace” resources.” See 33 C.F.R. § 332(c)(3); 73 Fed. Reg. at 19596

(explaining that the Rule emphasizes the importance of avoiding difficult-to-replace resources such as streams and recognizing that “the science of stream restoration is still evolving”).

c. Number of Credits Is Insufficient and Location of Compensatory Mitigation Is Insufficiently Evaluated.

The mitigation proposed thus far does not adequately compensate for the significant losses the project would impose. First, the number of credits is inadequate. In our view, the ratio used from the Sandy Island Mitigation Bank for the Conway Bypass project (49-1) would be an instructive starting point for consideration of the appropriate scope of landscape scale mitigation for this similar major highway project. Additionally, even under the inappropriate SOP methodology, the calculation appears to provide inadequate credit, as so-called “braided streams” were not treated as wetlands and calculated in acres, which would have significantly reduced stream restoration credits. Moreover, while the materials reference an “endowment” for use if the planned mitigation fails, the amount of the endowment appears undisclosed and uncertain.

Second, and perhaps more importantly, merely selecting two large sites relatively near the highway is not a true watershed approach to mitigation, as discussed above. We are also concerned that the sites selected, when appropriately studied, may not prove to be the most valuable or strategic in the watershed. Activities such as road maintenance and runoff from upstream agricultural sites may compromise the value and restoration potential of these sites, and the Brittons Neck site would remain segmented by a road even after complete restoration. Particularly without upstream buffers, not currently included as part of the mitigation plan, these sites cannot provide a meaningful landscape-scale mitigation opportunity on the scale of the aquatic resources proposed to be lost by construction of the I-73 project.

In evaluating different or additional measures to provide true landscape-scale mitigation, the Corps should consider all relevant factors. Specifically, in addition to compensating for fill within the highway footprint using an appropriate ratio of greater than 1-1 for restoration or enhancement, other direct impacts such as habitat fragmentation, runoff, noise and alteration of flow should be mitigated using a landscape scale approach. As recognized by both previous guidance and the new regulations, this could appropriately include a significant preservation component as has occurred recently on several other large projects in South Carolina. It may be possible to find a mitigation site or sites in the affected watershed that would incorporate preservation, enhancement and restoration to meet multiple mitigation objectives.

To be of maximum value for mitigation purposes, such a site or sites should be strategically located. Consideration should be given to sites where the potential threat of future development renders the preservation component more meaningful and proximity to other protected or potentially protected properties to effectuate a landscape scale approach that will to compensate for the large-scale fragmentation that will result from the I 73 project. The Corps should also focus on “in kind” mitigation where practicable.

In evaluating appropriate sites, the District should remain mindful that, under the Rule, “[i]n general, the required compensatory mitigation should be located within the same watershed as the impact site, and should be located where it is most likely to successfully replace lost

functions and services . . . .” 33 C.F.R. § 332.3(b). The project impacts three HUCs, yet mitigation is proposed for only two of these areas. Moreover, as discussed above, the Corps does not appear to have conducted the baseline inventory and considered the relevant factors necessary to implement a true and adequately-scaled watershed mitigation package. While we would not necessarily negate the possibility that a rigorous scientific analysis might reveal that the watershed could most benefit from mitigation that is large-scale but not spread across all three HUCs, absent such an analysis, the conceptual plan’s limits do not support issuance of a permit.

d. Use of Sandy Island Mitigation Bank Is Inappropriate

As previously noted, the conceptual mitigation plan does not identify and consider all available mitigation banking credits in the impacted watershed. Instead, it summarily declares that the project will use all the remaining credits from the Sandy Island mitigation bank and rely on permittee-responsible mitigation thereafter. The location of the Sandy Island bank, however, is inappropriate. The bank is not the site “most likely to successfully replace lost functions and services . . . .,” 33 C.F.R. § 332.3(b), as it occupies a coastal area with a vastly differing ecology than that impacted by I-73. The remaining credits in the Sandy Island bank should be saved for use in a coastal area with similar aquatic impacts.

Moreover, the proposed use of the Sandy Island bank for approximately 40% of the mitigation is inappropriate for two reasons. First, it is not in the same watershed and it has not been demonstrated that other existing banks, or mitigation opportunities, do not exist in the project watersheds. Second, the proposed ratio is far less generous than used on the Conway Bypass, or even the Carolina Bays Parkway. If the bank could be closed out on a smaller project, which is closer and involving the same aquatic ecosystems, these concerns would be less significant. Finally, because the Sandy Island bank is preservation only, a higher ratio is demanded, rather than allowing 40% of the I-73 wetland impacts fail to comply with the “no net loss” policy.

e. Adaptive Management, Monitoring, and Financial Assurances

The JPN and other documents we have been able to review are striking in their lack of detail concerning the nature of the mitigation planned and any assurances it will be successful. The performance criteria and standards by which success will be measured are not disclosed and development of any specific, measurable criteria are delayed until a final plan is developed. Moreover, the only information provided on adaptive management is that it is projected to occur if needed. The Corps does not appear to have put in place any concrete adaptive management plans to account for the risks inherent in the mitigation plan, which includes, among other things, enhancement in difficult-to-restore habitats such wet savannahs.

Similarly, the documents note that financial assurances will be provided, but do not provide any detail concerning the amounts or what will occur if the criteria for success are not met. Moreover, although the documents note conservation easements, will be held, likely by a 501(c)(3) organization, there is no assurance as to whole will hold title to the properties. The Rule and Guidelines require more, and without such information, there can be no reasonable

assurance of adequate mitigation, nor can the public provide meaningful comments on these important aspects of the plan.

The monitoring requirements of the conceptual mitigation plan are likewise vague and insufficient. The Corps must provide greater detail concerning the monitoring requirements. Furthermore, it is inappropriate and arbitrary to end monitoring after five years. Particularly given that this is a massive project impacting numerous unique, high-value resources, the District must require that monitoring continue until the success of the mitigation plan has been confirmed. See Guidelines at 17 (stating that monitoring may end once mitigation plan is determined to be a success).

### **The Proposed Project Violates South Carolina's 401 Water Quality Certification Regulations**

We also request denial of authorization to proceed with the construction of the preferred I-73 alternative because it is inconsistent with South Carolina's Water Quality Certification Regulations. To certify a project as consistent with its water quality standards, South Carolina must have "reasonable assurance" that the Project will not violate state water quality standards. S.C. Code Ann. Regs. § 61-101(A)(4). This project will have unacceptable adverse impacts to aquatic resources across the state, and specific regulatory provisions addressing the state's review under Section 401 require that the South Carolina Department of Health and Environmental Control ("DHEC") deny the requested certification.

#### **A. Less Damaging Feasible Alternatives Are Available**

South Carolina's Section 401 regulations prohibit certification if "there is a feasible alternative to the activity, which reduces adverse consequences on water quality and classified uses." S.C. Code Ann. Regs. § 61-101(F)(5)(b); id. § 61-101(F)(4). While Regulation 61-101 does not contain a definition of "feasible," the term is defined elsewhere in DHEC's regulations. S.C. Code Ann. Regs. § 19-450, which governs DHEC permitting of dredge/fill activities in state navigable waters, explains that

[feasibility] is determined by [DHEC] and is based upon the best available information, including but not limited to technical input from the agencies, and consideration of economic, environmental, social and legal factors bearing on the suitability of the proposed activity and its alternatives. It includes the concepts of reasonableness and likelihood of success of achieving the purpose. "Feasible alternatives" applies to both locations or sites and to methods of design or construction and includes a "no action" alternative.

S.C. Reg. 19-450.2.G. We, therefore, construe the term "feasible" as used in Regulation 61-101 with reference to the definition in Regulation 19-450.

Under South Carolina law, failure to fully consider feasible alternatives warrants denial of a Section 401 certification. Indeed, the Administrative Law Court has held a Section 401 certification to be unlawful where DHEC's consideration of feasible alternatives to the project was inadequate. Burgess v. DHEC, Docket No. 99-ALJ-07-0167-CC, 2000 SC ENV LEXIS 54.

As the court explained, “[t]he applicant specifically referenced only one other alternative, which involved bridging at a different location and dredging for placement of utilities. [The DHEC employee responsible for the 401 certification analysis] evaluated no other alternatives on his own.” Id.

As discussed above in the context of the 404(b)(1) Guidelines, the existing NEPA documentation will not support a conclusion by DHEC that no less-damaging feasible alternative exists here. Alternatives making primary use of existing corridors are not only feasible, but both environmentally and ecologically preferable. These alternatives would not require the dozens of new stream crossings, including crossings of a designated Outstanding Natural Resource Water, the Little Pee Dee River, nor would they necessitate 4 linear miles of fill. Upgrading and expanding existing corridors would also avoid fragmenting important habitats and other impacts of the project. In fact, given the questionable degree to which SCDOT’s preferred alternative meets the project’s underlying purpose and need, and the relative costs and benefits of the project, even the “no action” alternative is a feasible option. DHEC must therefore deny water quality certification for the project.

## **B. Water Quality Impacts**

South Carolina’s 401 regulations require DHEC to consider “all potential water quality impacts of the project, both direct and indirect, over the life of the project.” S.C. Reg. 61-101(F)(3)(c). Water quality impacts that must be considered include the impact on existing and classified water uses; physical, chemical, and biological impacts, including cumulative impacts; the effect on circulation patterns and water movement; and the cumulative impacts of the proposed activity and reasonably foreseeable similar activities of the applicant and others. Id.

South Carolina’s water quality standards emphasize a “preventative approach” that recognizes the difficulty of restoring water quality once degraded. S.C. Code Ann. Regs. § 61-68(A)(3). In keeping with that approach, certification must be denied if the “the proposed activity permanently alters the aquatic ecosystem in the vicinity of the project such that its functions and values are eliminated or impaired.” S.C. Code Ann. Regs. § 61-101(F)(5)(a). Even absent such severe effects, “[c]ertification will not be issued unless the Department is assured appropriate and practical steps including stormwater management will be taken to minimize adverse impacts on water quality and the aquatic ecosystem.” S.C. Code Ann. Regs. § 61-101(F)(4)-(6).

As previously discussed, the proposed Project would result in severe and permanent adverse impacts to the affected waters. And, many of these impacts could be avoided or minimized by adopting other available alternatives, or, at a minimum, modifying the design and corridor of the proposed new highway. The number and magnitude of the preferred alternative’s individual stream crossings, fragmentation of habitat across the state, and other substantial impacts to aquatic resources cannot be certified consistent with South Carolina’s “preventative approach” to protecting its water quality. For these reasons as well, DHEC should refuse to certify this project.

### **C. Impacts on Special or Unique Habitats**

DHEC's Section 401 regulations mandate stringent protections for special or unique habitats. Regulation 61-101(F)(5) provides that certification "will be denied" if "the proposed activity adversely impacts special or unique habitats." Our comments above detail the many and severe impacts the preferred alternative would visit on such habitats. The project would degrade an number of special and unique resources, including the Little Pee Dee River, Lake Swamp, and state lands protected as a Heritage Trust Preserve. In considering SCDOT's application for 401 certification, DHEC must carefully evaluate the I-73 project's effects on these, and must deny certification if it finds adverse impacts. This analysis, if properly conducted, will reveal unacceptable impacts, including loss of wetlands, fragmentation of habitat impaired hydrology, and degraded water quality. Thus, this criterion also precludes issuance of a Section 401 certification. See S.C. Code Ann. Regs. § 61-101(F)(5)(d).

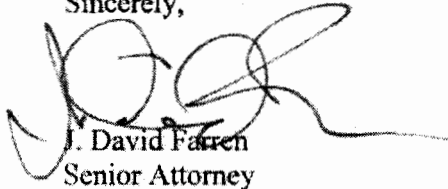
### **D. Adverse Effects on Waters Containing Endangered Species**

The affected waters provide habitat for the federally endangered Shortnose sturgeon and for the Atlantic sturgeon, which has been proposed for listing under the Endangered Species Act. Adverse impacts to these species would likewise prevent issuance of a certification. See S.C. Code Ann. Regs. § 61-101(F)(5)(c) (certification will be denied if an activity adversely affects State or Federally recognized rare, threatened, or endangered species). Given the failure to evaluate overall impacts on a watershed basis, further exploration of this issue is warranted.

### **Conclusion**

For the foregoing reasons the Corps should deny the Section 404 permit request and DHEC should deny a Section 401 certification. We look forward to the opportunity to discuss our concerns and answer any questions you may have about our comments.

Sincerely,



J. David Faren  
Senior Attorney

Enclosures: Attachments 1-10 (with map enclosures only for mailed copies, except indicated by \*, and all enclosures with electronic transmissions)

Cc: Heather Preston, SC DHEC\*  
Kelly Laycock, EPA\*  
Jennifer Derby, EPA  
Robert Lee, SC FHWA\*  
David Rackley, National Marine Fisheries Service (NOAA)  
Mark Caldwell, US Fish and Wildlife  
Prescott Brownell, NMFS/SR NOAA Fisheries



Ronnie Feaster, NRCS  
Robert J. St. Onge, Jr. SCDOT\*  
Mitchell Metts, PE, SCDOT\*  
Ron Patton, SCDOT\*  
Danny Isaac, Chairman, SCDOT Commission\*  
Ken Willingham, SCDOT Commission\*  
J. Craig Forrest, SCDOT Commission\*  
R. Eddie Adams, SCDOT Commission\*  
John P. Edwards, SCDOT Commission\*  
Sarah Nuckles, SCDOT Commission\*  
Harrison Rearden, SCDOT Commission\*  
Bob Perry, SCDNR\*  
Chuck Hightower, SC DHEC Division of Water Quality  
Barbara Neale, SC DHEC Ocean and Coastal Resources Management  
David P. Kelly, SC Department of Archives and History  
George Estes, SC Department of Parks, Rec. & Tourism  
Jon Boettcher, SC Emergency Management Division  
Ed West, SC Department of Commerce\*  
Reggie Daves, Waccamaw Audubon Society  
Norm Brunswig, SC Audubon Society  
Ben Gregg, SC Wildlife Federation  
Bunny Beason, Wildlife Action  
Nancy Cave, SCCCL\*  
Barbara Zia, SC League of Women Voters  
Peggy Brown, SC League of Women Voters  
Brad Dean, Myrtle Beach Area Chamber of Commerce\*  
Annette Fisher, Georgetown County Chamber of Commerce  
Christine Ellis, Waccamaw Riverkeeper, Winyah Rivers Foundation  
Samantha Siegel, SC Sierra Club  
Kurt Henning, SC Sierra Club

**JOINT**  
**PUBLIC NOTICE**

**CHARLESTON DISTRICT, CORPS OF ENGINEERS**  
69A Hagood Avenue  
Charleston, SC 29403-5107  
and  
**THE S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL**  
Office of Environmental Quality Control  
Water Quality Certification and Wetlands Programs Section  
2600 Bull Street  
Columbia, South Carolina 29201

REGULATORY DIVISION

Refer to: P/N SAC-2008-01333 REVISED

July 8, 2016

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), the South Carolina Coastal Zone Management Act (48-39-10 et seq.), and the S.C. Construction in Navigable Waters Permit Program (R. 19-450, et seq., 1976 S.C. Code of Laws, as amended), a revised application has been submitted to the Department of the Army and the S.C. Department of Health and Environmental Control by

**SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**  
P O Box 191  
Columbia, South Carolina 29202

for a permit to place fill within wetlands adjacent to and within the following waters of the United States and/or their tributaries in South Carolina;

**NEWTON BAY, BEVERLY CREEK, COTTINGHAM CREEK, HAGINS PRONG, LITTLE REEDY CREEK, THE GULLEY, MAIDENDOWN SWAMP, LITTLE SISTER BAY, BACK SWAMP, LITTLE PEE DEE RIVER, BLACK CREEK, HANNAH BAY, LAKE SWAMP, RATTLESNAKE BRANCH, LONG BRANCH, JOINER SWAMP, LOOSING SWAMP, WATERY BAY, MOSE SWAMP, CHINNERS SWAMP, AND CROSS BRANCH**

at various locations in Marlboro, Dillon, Marion, and Horry Counties (from Latitude 34.79250 N, Longitude -79.66042 W (NAD83) to Latitude 33.93806 N, Longitude -79.06833 W (NAD83)) beginning at the NC/SC state line northeast of Bennettsville in Marlboro County and extending to its intersection with SC 22 northwest of Conway, South Carolina.

In order to give all interested parties an opportunity to express their views

**NOTICE**

is hereby given that written statements regarding the proposed work will be received by the **Corps** until

**30 Days from the Date of this Notice,**

July 8, 2016

and **SCDHEC** will receive written statements regarding the proposed work until

**30 Days from the Date of this Notice**

from those interested in the activity and whose interests may be affected by the proposed work.

**PLEASE NOTE:** THE PROJECT WAS ORIGINALLY PLACED ON PUBLIC NOTICE ON JANUARY 26, 2011. THE PROJECT HAS SINCE BEEN REVISED TO INCLUDE MODIFICATIONS TO THE PREVIOUSLY ADVERTISED WORK AND THE PROPOSED COMPENSATORY MITIGATION PLAN. ONLY COMMENTS RECEIVED IN RESPONSE TO THIS PUBLIC NOTICE WILL BE CONSIDERED.

The proposed work consists of the placement of fill to construct a new four lane Interstate roadway approximately 75.3 miles, on new alignment. This project will also include the construction of interchanges, over/underpasses, and improvements to existing roadways at the interchanges and over/underpasses. The project would utilize a standard limited access interstate design with frontage roads and entrance/exit ramps at interchanges, storm water facilities, grassed medians, shoulders, guide rails, and barrier fences. In detail, the I-73 project will include; permanent placement of fill materials/structures in a total of 4,643 linear feet of stream and a total of 324.1 acres of other waters, including wetlands. The impacts to wetlands include: 254.28 acres from fill, 48.67 acres from temporary clearing, 16.75 acres from permanent clearing, and 4.4 acres from excavation. These project impacts will occur within 17 separate streams, 139 separate wetlands, and 5 separate ponds/impoundments.

The revised mitigation plan for the I-73 project will no longer include the Joiner Bay wetland mitigation site and the Long Branch stream mitigation site. The proposed compensatory mitigation plan consist of the permittee responsible mitigation site referred to as the "Gunter's Island" site located in Horry County, South Carolina. The proposed mitigation plan states that the Gunter's Island mitigation site is a large scale mitigation opportunity with regional importance based on a watershed approach to protect water quality and aquatic resources. Gunter's Island is a 6,134 acre tract on the east side of the Little Pee Dee River approximately four miles north of the US 378 crossing of the Little Pee Dee River. Based upon information provided by the applicant, this tract contains 89,836 linear feet of tributaries, 4,583 acres of wetlands, and includes an eleven mile long corridor along the east side of Little Pee Dee River. The applicant is proposing to purchase and preserve this tract (including an intact Carolina Bay) and conduct enhancement activities by the replacing/removing existing culverts/bridges/roads, stabilizing stream banks, and supplemental planting along floodplains within wetlands and buffers. The applicant indicates that preservation of this tract will prevent habitat fragmentation caused by land conversion from typical agricultural practices to non-traditional uses, development, and poor land management practices. The long term steward of this site will be the South Carolina Department of Natural Resources (for management and inclusion into the Heritage Trust Program).

According to the application, the project purpose is to provide an interstate link between the I-73/I-74 Corridor in North Carolina to the Myrtle Beach region in South Carolina, to serve residents, businesses, and travelers while fulfilling congressional intent in an environmentally sensitive manner. The I-73 primary needs are to provide system linkage and to enhance economic development. The I-73 project will improve national and regional connectivity by providing a link between the I-73/I-74 National Corridor and the Myrtle Beach region. In addition, the project will help enhance economic development opportunities and tourism in northeastern South Carolina. According to revised application, the secondary needs differ between I-73 North and I-73 South, with the secondary needs of I-73 North being to improve access for tourism into the area, increase

July 8, 2016

safety on existing roads, and multimodal planning if future light rail were to go through the area. The secondary needs for I-73 South include facilitating hurricane evacuation from the coast, relieving local traffic congestion, and multimodal planning.

As detailed in the Environmental Impacts Studies for both the northern I-73 corridor and the southern I-73 corridor, the applicant has considered numerous roadway corridor location alternatives for this project. These alternatives were evaluated based upon their impact to the human and natural environment, input received from public, and input from various agencies. The evaluation of this information led the applicant to their determination of which alternative roadway corridor location would meet the established project purpose and need while minimizing impacts to both the human and natural environment. The roadway corridor depicted on plans associated with this Public Notice include the applicant's preferred alternative alignment and location for both the northern and southern corridors

**Additional source of information:** Project maps, the Environmental Impact Study for both northern corridor and southern corridor which include roadway corridor alternative development and selection, right-of-way plans, and additional permitting information can be viewed at the I-73 website ([www.i73inSC.com](http://www.i73inSC.com)).

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The work shown on this application must also be certified as consistent with applicable provisions of the Coastal Zone Management Program (15 CFR 930). This activity may also require evaluation for compliance with the S. C. Construction in Navigable Waters Permit Program. State review, permitting and certification is conducted by the S. C. Department of Health and Environmental Control. The District Engineer will not process this application to a conclusion until such certifications are received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact a total of 324.1 acres of freshwater habitat upstream of estuarine substrates and emergent wetlands utilized by various life stages of species comprising the shrimp, and snapper-grouper management complexes. The District Engineer's initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). The District Engineer's final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

Pursuant to the Section 7 of the Endangered Species Act of 1973 (as amended), the applicant has provided a protected species survey for the property associated with the activity described above. Based upon this report, the District Engineer has determined that the project is not likely to adversely affect any Federally endangered, threatened, or proposed species or result in the destruction or adverse modification of designated or proposed critical habitat. Specifically, this project may but is not likely to affect the Kirkland's warbler, Shortnose sturgeon, and the Atlantic sturgeon. This public notice serves as a request for written concurrence from the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service on this determination.

July 8, 2016

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), this public notice also constitutes a request to Indian Tribes to notify the District Engineer of any historic properties of religious and cultural significance to them that may be affected by the proposed undertaking.

In accordance with Section 106 of the NHPA, the District Engineer has consulted South Carolina ArchSite (GIS), for the presence or absence of historic properties (as defined in 36 C.F.R. 800.16)(f)(1)), and has initially determined that a historic property is present, and will be affected. This determination is based upon the information the applicant has provided on a historic/Section 4(f) property, the Beauty Spot Motorcourt Office, the Section 4(f) evaluation, and the Memorandum of Agreement between SCDOT and SHPO related to this effect. To ensure that other historic properties that the District Engineer is not aware of are not overlooked, this public notice also serves as a request to the State Historic Preservation Office and other interested parties to provide any information they may have with regard to historic properties. This public notice serves as a request for concurrence within 30 days from the SHPO (and/or Tribal Historic Preservation Officer).

The District Engineer's final eligibility and effect determination will be based upon coordination with the SHPO and/or THPO, as appropriate and required and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the Corps-identified permit area.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps cannot undertake to adjudicate rival claims.

The Corps is soliciting comments from the public, Federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments will be used in the preparation of the Corps Record of Decision related to the Corps issuance or denial of the Department of Army permit. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

## Laycock, Kelly

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**Subject:** I-73  
**Location:** Conference Call  
  
**Start:** Tue 8/2/2016 3:00 PM  
**End:** Tue 8/2/2016 4:00 PM  
  
**Recurrence:** (none)  
  
**Meeting Status:** Accepted  
  
**Organizer:** Williams, Elizabeth G SAC

Conference Call to discuss I-73.

Kelly, I do not have Matt Hicks email address so please forward to him. Thank you!

Phone Number: (b) (6)  
Access Code: (b) (6)  
Security Code: (b) (6)





July 8, 2016

If there are any questions concerning this public notice or you have written comments regarding this project, please contact Stephen A. Brumagin, Project Manager, at 803-253-3444 or by mail;

**US Army Corps of Engineers  
Charleston District, Columbia Field Office  
1835 Assembly Street, Suite 865 B-1  
Columbia, SC 29201.**





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

July 29, 2014

Lt. Colonel John T. Litz  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Litz:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet (LF) of stream.

The U.S. Environmental Protection Agency Region 4 has reviewed the applicant's responses to our previous comment letters and we continue to have concerns about the proposed mitigation plan. As background, our concerns with the wetlands portion of the applicant's compensatory mitigation plan were previously documented in letters dated March 28, 2011, April 28, 2011 and January 7, 2013. Further, the EPA reviewed the applicant's stream mitigation plan dated July 24, 2013 and had concerns that were expressed in a letter dated September 11, 2013. The EPA received a package containing the applicant's proposed final wetland mitigation plan as well as their proposed final stream mitigation plan on July 14, 2014. After reviewing the submittals, the EPA continues to have concerns with both plans.

The applicant has indicated with the latest submittal that they are unable to provide additional mitigation opportunities to address current mitigation credit shortfall, identify long term stewards for the mitigation sites, nor provide long term financial assurance plans acknowledging the concerns the EPA has raised in the past. The plan as currently proposed has a 1,290 wetland credit shortfall. Therefore, with this information alone, the plan is inadequate and the project as current proposed should be denied. Further, long term stewards and long term financial assurances are among the 12 elements specified in the mitigation rule including: objectives, site selection, site protection instrument, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan and financial assurances. Therefore, the mitigation package is incomplete.

The EPA expressed many other concerns in our previous letters which have not been addressed with the applicant's submittal. These concerns are reiterated below.

The permittee-responsible wetland mitigation proposed by the applicant is referred to as the Joiner Bay Wetland Mitigation Site. The Joiner Bay Mitigation is not on site, but is within the same 8 digit HUC as a majority of the impacts. The applicant proposes an estimated 21.0 acres of wetland restoration through fill removal, 116.2 acres of effectively drained wetland restoration through ditch removal, 61.3 acres of partially drained wetland enhancement through ditch removal, 594.1 acres of hydrologic wetland enhancement through re-grading of silviculture bedding and vegetative restoration and 32.1 acres of wetland enhancement through prescribed burning which will generate 2,195.6 wetland credits based on the applicant's use of the U. S. Army Corps of Engineers (USACE), Charleston District Standard Operating Procedure (SOP) "Guidelines for Preparing a Compensatory Mitigation Plan" October 7, 2010.

The EPA has concerns with the credit calculations the applicant has made. The applicant states, "Hydrologic restoration provided by the Site are expected to replace those impacted as a result of the I-73 project within 10 to 20 years; therefore, a temporal loss factor of -0.3 was applied to these mitigation areas. Hydrologic and vegetative enhancement areas are expected to replace functions lost at the impact site within 5 to 10 years, therefore a temporal loss factor of -0.2 was applied to these areas. Finally, areas that are to undergo only a prescribed burn are expected to replace functions lost at the impact site within 0 to 5 years, therefore a temporal loss factor of -0.1 was applied to these areas. The EPA does not contest the temporal loss factor of -0.1 used in areas with a mature canopy where only prescribed burning is proposed. However, the other communities they are proposing to reestablish are forest communities which will not fully mature within that time frame. Accordingly, the EPA recommends that the maximum temporal loss factor of over 20 years be used. The applicant also considers all the restoration as "in kind" mitigation. However, the majority of the communities proposed to be reestablished are pine savannah and streamhead pocosin, while the majority of the impacts are to bottomland hardwoods and wooded swamp. The EPA recommends that the "out of kind" factor in the SOP be applied to all acreage which is not categorized as the same type as impact sites.

The applicant proposes that hydrologic success criteria will be based upon target hydrological characteristics including saturation or inundation within the top 12 inches of soil for a minimum of 7 percent (i.e., 19 consecutive days) of the growing season during average climatic conditions. We recommend that instead the success criteria be within 25 percent of the hydrological regime of reference wetlands. The EPA appreciates that vegetation success criteria in the proposal are those recommended by us for the pine savannah habitat. The applicant proposes to use the methodology derived by the Alabama-Mississippi Mitigation Banking Review Team for Wet Pine Flats as derived from Rheinhardt, R.D., Rheinhardt, M.C., and Brinson, M.M. (2002) "A Regional Guidebook for Applying the Hydrogeomorphic Approach to Assessing Wetland Functions of Wet Pine Flats on Mineral Soils in the Atlantic and Gulf Coastal Plains." While this method is acceptable for the pine savannah and mesic pine flatwood habitats, other vegetation success criteria should be specified for the bay forest, streamhead pocosin, and bald cypress-tupelo gum swamp habitats.

The EPA also has concerns with the long term management associated with maintaining a pine savannah community. We request a detailed adaptive management plan in case burning is not possible during some years. Further, we request details of long-term financial assurances that will provide moneys for burning and other maintenance in perpetuity.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
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**APR 28 2011**

Lt. Colonel Jason A. Kirk  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Kirk:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The U.S. Environmental Protection Agency, Region 4, has reviewed the JPN, and supporting information supplied by the applicant dated January 4, 2011. Based on that review, EPA has found that the project does not comply with Section 404(b)(1) Guidelines, and we therefore recommend that the permit for the project, as currently proposed, be denied. Our concerns were documented in a letter dated March 28, 2011, and are incorporated here by reference.

**Alternative Analysis**

The applicant's preferred alternative is to construct a new four lane interstate roadway approximately 80 miles in length in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The applicant's preferred route runs parallel to SC 38/ US 501, a current four lane route. A high percentage of the preferred alternative route is new road and intuitively may cause greater impacts and fragmentation than utilizing an existing road corridor, including the SC 38/US 501. As an alternative to the applicant's preferred route, EPA highly recommends the use of the existing SC 38/US 501 road corridor that would remove the need for a new crossing of Aquatic Resources of National Importance (ARNI), including the State Heritage Preserve wetlands and streams, and the Lake Swamp area.

EPA recommends the consideration of this existing SC 38/US 501 route, along with phased up-grades, as the preferred alternative for the I-73 corridor, as it is an existing four lane highway with up-grade potential, and transects already degraded waters of the U.S. This recommendation is proposed as a lower impact alternative to the applicant's preferred alternative corridor. In a recent third party study dated March 11, 2011, provided to EPA and paid for by the Southern Environmental Law Center, a transportation analyst determined that the existing SC 38/US 501 route, with up-grades, would be the least impacting and least costly route of all that were evaluated.

The third-party study also evaluated two additional options, including a route following the SC 9 corridor, and a route that would include a new connector from US 74 to SC Route 22. The US 501 and SC Route 9 corridors were both examined early in the National Environmental Policy Act process, by evaluating very wide corridors which resulted in estimates of large impacts. For this reason, they were both eliminated from further consideration. EPA, however, recommends a re-examination of these options using the narrower corridor width that was later used to evaluate the applicant's preferred alternative, to allow for an equivalent comparison with the existing SC 38/US 501 corridor. We also recommend using recent aerial photography and more recent wetland inventories to provide greater accuracy of the estimated impacts, instead of using the National Wetlands Inventory mapping layers that do not reflect current conditions in this case.

### **Preferred Alternative Impacts**

The applicant states that, using the Charleston District Standard Operating Procedures to calculate impacts, 18,220 stream credits and 4,163 wetland credits are required to compensate for the proposed impacts to waters of the U.S. It appears that the project will impact State Heritage Preserve properties along, with areas in Lake Swamp, all of which the EPA considers ARNIs. Impacts to these areas need to be discussed in detail including the avoidance and minimization utilized. All streams being impacted were categorized as impaired and given the lowest existing condition score possible. The applicant needs to provide comprehensive information detailing the current stream and wetland conditions that would cause the impacted areas to meet these definitions of impairment.

### **Mitigation**

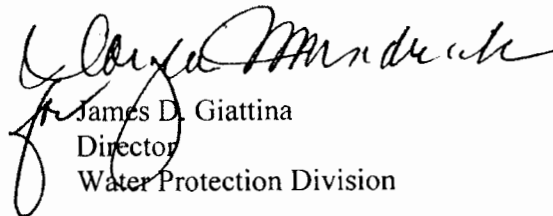
The applicant's plan for mitigation through buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites is not consistent with the 2008 Mitigation regulations which require applicants to look sequentially at mitigation banks, in-lieu fee programs, and permittee-responsible mitigation for required compensatory mitigation. It appears that credits from other banks are available for the impacted hydrologic unit codes, and these should be exhausted before permittee-responsible mitigation is considered.

The applicant's watershed description and site selection rationale for the wetland mitigation site are missing some important details. A good example of what is required in a watershed approach is given in the guidance from the U.S. Army Corps of Engineers, Kansas City District entitled, *Compensatory Mitigation Plan Requirements for Permittee Responsible Mitigation Projects*, January 2010. Goals and success criteria for the wetland portion of the project mitigation need to be specifically matched to the wetland types being restored. The applicant's stream mitigation plan provides inadequate information to determine if the plan can be successful. The applicant needs to provide information for the existing stream, including the drainage area, stream type, bankfull area and width, width-to-depth ratio, width floodprone area, entrenchment ratio, maximum depth at bankfull width, valley slope, bed material, etc. A reference reach should also be chosen and have the same factors measured. The applicant must then determine the expected measurements of these factors for the design reach and how they will be achieved, including map plans showing the in-stream structures (cross-vanes, j-hooks, etc.) and their placement.

Based on the above observations, EPA has determined that the project, as currently proposed, does not comply with the Section 404(b)(1) Guidelines and will have substantial and unacceptable adverse impacts on ARNIs. Therefore, we recommend denial of the project, as currently proposed. This letter

Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Ms. Kelly Laycock, ORISE Intern, (Laycock.Kelly@epa.gov or 404-562-9132) or Ms. Jennifer Derby, Section Chief ([derby.jennifer@epa.gov](mailto:derby.jennifer@epa.gov) or 404-562-9401).

Sincerely,



James D. Giattina  
Director  
Water Protection Division

cc: Mr. Stephen Brumagin, USACE  
Mr. Travis Hughes, USACE  
Mr. Mark Leao, USFWS  
Ms. Pace Wilber, NMFS  
Ms. Susan Davis, SC DNR  
Ms. Vivianne Vejdani, SC DNR  
Mr. Mark Giffin, SC DHEC  
Mr. Chuck Hightower, SC DHEC

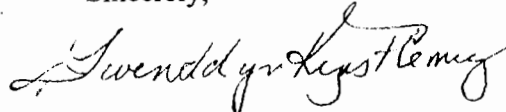




follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.

Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, ORISE Intern, (Laycock.Kelly@epa.gov or 404-562-9132) or Ms. Jennifer Derby, Section Chief (derby.jennifer@epa.gov or 404-562-9401).

Sincerely,

A handwritten signature in cursive script, reading "Gwendolyn Keyes Fleming".

Gwendolyn Keyes Fleming  
Regional administrator

cc: Mr. Stephen Brumagin, USACE  
Mr. Travis Hughes, USACE  
Mr. Mark Leao, USFWS  
Ms. Pace Wilber, NMFS  
Ms. Susan Davis, SC DNR  
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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

September 11, 2013

Lt. Colonel John T. Litz  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Subject: I-73 SAC 2008-1333-DIS

Dear Colonel Litz:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system, approximately 80 miles in length, and located in Marlboro, Dillon, Marion and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet (LF) of stream.

The U.S. Environmental Protection Agency Region 4 has reviewed the applicant's responses to our previous comment letters and we continue to have concerns about the proposed mitigation plan. As background, our concerns with the wetlands portion of the applicant's compensatory mitigation plan were previously documented in letters dated March 28, 2011, April 28, 2011 and January 7, 2013. We are still awaiting the applicant's response to our concerns with the wetland mitigation plan. The EPA has reviewed the applicant's stream mitigation plan dated July 24, 2013 and has the following comments.

The applicant's permittee-responsible stream mitigation plan is referred to as the Long Branch Mitigation Plan and is located approximately 6.2 miles from the applicant's preferred project site. The proposed mitigation site will restore approximately 2,543 LF of stream and enhance approximately 4,867 LF of stream along Long Branch, enhance approximately 5,565 LF of stream along Indian Pot Branch and restore approximately 1,632 LF along two unnamed tributaries (UT1 and UT2) that flow into Long Branch.

Using the U.S. Army Corps of Engineers (USACE) Charleston District 2010 Guidelines for Preparing a Compensatory Mitigation Plan Standard Operation Plan (SOP), the applicant calculates that 22,640 stream credits are required to compensate for the proposed stream impacts. The cumulative impact factor was calculated for each 11-digit HUC in which the impacts occur. The EPA appreciates that impacts are calculated for each watershed to more accurately capture mitigation needs. However, the SOP specifically states that the cumulative impact factor should be calculated for the total impacts of an entire project. Therefore, the EPA recommends these calculations be corrected by applying the appropriate factor.

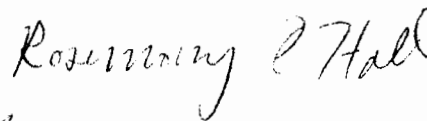
While the EPA believes the proposed mitigation site has potential to generate stream mitigation credits, we have significant concerns with the plan as currently proposed. Our most significant concern is the lack of control the applicant will have on the stream reach. Over 4,000 LF of the project will only have protection and adequate riparian buffer on one bank of the stream due to current landowners being unwilling to participate in a conservation easement. This limits the ability of the applicant to ensure restoration and enhancement of the stream is successful. The applicant proposes to improve water quality and to enhance the riparian vegetation by planting desirable species and removing exotic, invasive species. All of these plans could be compromised by activities in the uncontrolled, riparian corridor.

The EPA also has concerns with water quality on the mitigation site and the lack of an adequate water quality monitoring plan. The proposed streams enter the site via highly impacted tributaries from agricultural fields. There are also multiple ditches from agricultural areas which drain into the streams. We recommend a robust monitoring plan including stations where the streams enter and exit the site, at all confluences on site and at the point of discharge of all drainage ditches into mitigation streams. We recommend collecting baseline data at these stations as well as collecting data throughout the monitoring period.

The proposed mitigation plan also lacks definitive performance standards tied to stated objectives. The applicant states that water quality improvement is an objective of the proposed mitigation. However, there are no performance standards to measure the success of meeting this objective. Exotic plant removal is a major component of the applicant's vegetation enhancement plan but it also lacks a performance standard to measure success. We recommend that exotic plant removal be considered successful if exotic vegetation remains below 1 percent of the total vegetation cover for the length of the monitoring period. While the applicant provides planting survival performance standards, there are no standards to measure the success of maintaining the species diversity of the planting plan. The applicant states that many factors will be visually monitored, including: bank stability, condition of in-stream structures, channel migration, headcuts, live stake mortality, impacts from invasive plant species or animal species and condition of pools and riffles. It is unclear if performance standards will be established for these factors, thus more details are needed.

Based on the above observations, the EPA has determined that the project, as currently proposed, does not have an adequate compensatory mitigation plan and therefore is inconsistent with the Section 404(b)(1) Guidelines and the 2008 Mitigation Rule. Thank you for the opportunity to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, (Laycock.Kelly@epa.gov or (404) 562-9132) or myself at (able.tony@epa.gov or (404) 562-9273).

Sincerely,



*for* Tony Able  
Chief  
Wetlands Regulatory Section



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

September 11, 2013

Lt. Colonel John T. Litz  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

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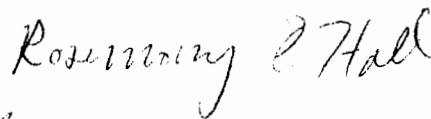
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Sincerely,



*for* Tony Able  
Chief  
Wetlands Regulatory Section





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
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MAR 28 2011

Lt. Colonel Jason A. Kirk  
District Engineer  
Attn: Mr. Stephen Brumagin  
U.S. Army Corps of Engineers  
69A Hagood Avenue  
Charleston, South Carolina 29403-5107

Re: I-73 SAC 2008-1333-DIS

Dear Lt. Colonel Kirk:

This letter is in response to your request for comments on the above referenced joint public notice (JPN). The South Carolina Department of Transportation (Applicant) seeks a permit to perform mechanized land clearing, excavation, and the discharge of fill material, in waters of the U.S. to construct a new four lane limited access highway as part of the proposed I-73 interstate system approximately 80 miles in length located in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The project will permanently impact a total of 293.4 acres of wetlands and 4,643 linear feet of stream.

The Environmental Protection Agency (EPA), Region 4 has reviewed the JPN, and supporting information supplied by the applicant dated January 4, 2011. Based on that review EPA has found that the project does not comply with Section 404(b)(1) Guidelines, as a result we recommend that the permit for the project, as currently proposed, be denied.

#### **Alternative Analysis**

The applicant's preferred alternative is to construct a new four lane interstate roadway approximately 80 miles in length in Marlboro, Dillon, Marion, and Horry Counties, South Carolina. The applicant's preferred route runs parallel to SC 38/ US 501, a current four lane route. A high percentage of the preferred alternative is new road and intuitively may cause greater impacts and fragmentation than utilizing an existing road corridor, including the SC 38/US 501. After looking at aerial photos of the existing four lane SC 38/US 501 route, it appears that a large portion of the wetlands previously identified in National Wetland Inventory (NWI) maps, which the applicant based the decision to eliminate this existing route from analysis during the National Environmental Policy Act (NEPA) process, are now agricultural fields and pine plantations and are likely degraded, drained or filled. As an alternative to the applicant's preferred route, the use of the existing SC 38/US 501 road corridor would remove the need for a new crossing of Aquatic Resources of National Importance (ARNI) including the State Heritage Preserve wetlands and streams and the Lake Swamp area. The most current aerial photography also shows construction of upgrades at the intersection of SC 38 and US 501 and the intersection of US 301 and US 501. Continued up-grades such as these could provide a less costly expressway with fewer impacts than the preferred alternative.

EPA highly recommends the consideration of this existing SC 38/US 501 route, along with phased up-grades, as the preferred alternative for the I-73 corridor, as it is an existing four lane highway with up-grade potential, and transects already degraded waters of the U.S. This recommendation is proposed as a lower impact alternative to the applicant's preferred alternative corridor. In a recent third party study dated March 11, 2011, provided to EPA and paid for by the Southern Environmental Law Center, the transportation analyst concluded that the existing SC 38/US 501 route, with up-grades, would be the least impacting and costly route of all that were evaluated.

The study also suggests two additional options, including a route following the SC 9 corridor, or a route that would include a new connector from US 74 to SC Route 22, as opposed to the applicant's preferred alternative. The US 501 and SC Route 9 corridors were both examined early in the NEPA process, by evaluating very wide corridors which resulted in estimates of large impacts. For this reason, they were both eliminated from further consideration. EPA, however, recommends a re-examination of these options using the more narrow corridor width that was later used to evaluate the applicant's preferred alternative, to allow for an equivalent comparison with the existing SC 38/US 501 corridor. We also recommend using aerial photography or more recent wetland inventories to determine the accuracy of the estimated impacts from the use of the NWI mapping layers that do not reflect current conditions in this case.

### **Preferred Alternative Impacts**

The applicant states that, using the Charleston District Standard Operating Procedures (SOP) to calculate impacts, 18,220 stream credits and 4,163 wetland credits are required to compensate for the proposed impacts to waters of the U.S. These credits were calculated using the September 2002 SOP, however, the October 2010 SOP was issued before the application was submitted and should therefore be used to calculate the appropriate credits needed. It appears that the project will impact State Heritage Preserve properties along with areas in Lake Swamp, all of which the EPA considers ARNIs. Impacts to these areas need to be discussed in detail including the avoidance and minimization utilized. All streams being impacted were categorized as impaired and given the lowest existing condition score possible. For the purposes of the SOP, a stream is defined as impaired based on these various stream conditions: the reach has been channelized or the entrenchment ratio and/or width/depth ratio at bankfull discharge is inappropriate for the stream type relative to the unimpaired stream condition; based on the reference reach data, the stream has degraded to a less desirable type; stream recovery is unlikely to occur naturally; the stream has extensive human-induced sedimentation; the stream has little or no riparian buffer with deep-rooted vegetation; and/or the stream has culverts, pipes, impoundments, or other in-stream manmade structures occur within 0.1 mile upstream or downstream. A large majority of the wetland impact sites were categorized as very impaired or impaired, and none were listed as fully functional. The definition of a very impaired wetland according to the SOP is: a site where many functions, typically attributed to the system type, have been lost due to site disturbances and where full functional recovery would require a major restoration effort. Therefore, in keeping with the SOP, the applicant needs to provide comprehensive information detailing the current stream and wetland conditions that would allow the impacted areas to meet these definitions of impairment.

## Mitigation

The applicant proposes to mitigate wetland and stream impacts for this project through buying credits from the Sandy Island Mitigation Bank and restoring two permittee-responsible mitigation sites. This mitigation plan is not consistent with the 2008 Mitigation regulations which require applicants to look sequentially at mitigation banks, in-lieu fee programs, and permittee-responsible mitigation for required compensatory mitigation. It appears that credits from other banks are available for the impacted HUCs and these should be exhausted before permittee-responsible mitigation is considered.

The applicant's watershed description and site selection rationale for the wetland mitigation site is missing some important details. A good example of what is required in a watershed approach is given in the guidance from the U.S. Army Corps of Engineers, Kansas City District entitled, *Compensatory Mitigation Plan Requirements for Permittee Responsible Mitigation Projects*, January 2010. This guidance states:

*A. The most preferred permittee responsible compensatory mitigation plan incorporates a watershed approach to ensure that the proposed compensatory mitigation site and aquatic resource restoration plan supports the sustainability and/or the improvement of aquatic resources within the identified watershed. A landscape perspective is used to identify the types of aquatic resources that most benefit the affected watershed and how the proposed mitigation site is suited to the restoration of these aquatic resources.*

*B. In order to meet the watershed approach criterion, the permittee must define the identified watershed boundary and address how the mitigation proposal will benefit wetland and/or stream habitats, water quality, hydrologic conditions, and aquatic and/or terrestrial species needs within the identified watershed boundary.*

- 1. The permittee must identify and briefly discuss the historic losses and the current trends of losses of aquatic resources (i.e. wetland and streams) and other wildlife habitats within the watershed based on current and historic land use.*
- 2. Identify and briefly discuss water quality issues present within the watershed.*
- 3. Describe the immediate and the long-term needs of the watershed to improve both the wildlife habitats and the water quality and describe the suitability (technical feasibility) of the site to meet the needs of the watershed.*
- 4. Describe the historic and the current state of the mitigation site and the adjacent lands. In addition, describe the ecological suitability (physical, chemical and biological characteristics) of the site to achieve the objectives of the mitigation plan and to improve the conditions within the identified watershed.*
- 5. Identify and discuss the short-term and the long-term off-site threats (including water rights) within the watershed that may affect the wetland and the water quality services constructed at the mitigation site. Discuss how these threats are addressed in order to assure longevity of services at the site.*

The applicant's project goals for the wetland mitigation project include improving ground water quality, sediment reduction, and nutrient dilution. However, it appears that only vegetation

density and hydroperiod will be monitored. To determine the success toward meeting these goals, baseline data and success criteria should be established. The applicant plans to restore four types of wetlands: pine flatwoods, pine wet flatwoods, bottomland hardwoods, and bay forest. These communities have different vegetation types and densities but the only success criteria mentioned is 320 stems per acre at 3 year monitoring and 260 stems per acre at the 5 year monitoring. These criteria are inadequate in determining if the desired communities are established. Typical species composition and densities should be established for each wetland type and used as success criteria. Further, while the density at years 3 and 5 are given, no planting density is established. The measure of success for 260 stems per acre is very different depending on if the initial planting was 1,000 stems per acre versus 500 stems per acre. Also, the applicant uses the highest net improvement factor for all restoration, but the fully functional restoration of bottomland hardwood forests, bay forests, or pine flatwoods cannot be determined in a 5 year monitoring period. The applicant should either lower this net improvement score accordingly or extend the monitoring period.

The applicant's stream mitigation plan provides inadequate information to determine if the plan can be successful. The applicant needs to provide information for the existing stream including the drainage area, stream type, bankfull area and width, width to depth ratio, width floodprone area, entrenchment ratio, maximum depth at bankfull width, valley slope, bed material, etc. A reference reach should also be chosen and have the same factors measured. The applicant must then determine the expected measurements of these factors for the design reach and how they will be achieved including map plans showing the in-stream structures (cross vanes, j hooks, etc) and their placement. Nearly 59 percent of the stream restoration will be classified as Rosgen DA stream with the remainder being Class C. Information indicating that the natural stream channel followed this pattern (i.e. slope equals less than 0.5 percent for the areas Rosgen DA streams are restored) and a similar reference reach should be provided. The applicant needs to provide information to show that impacted streams are also Rosgen DA and Class C streams and that this mitigation is in-kind. The applicant needs to better describe the prescription to create the Rosgen DA streams, the success criteria to be used, and adaptive management in case the area does not form an anastomosed channel system, essentially becoming a wetland area.

In order to have fully evaluated the proposed impacts and mitigation, EPA believes that site visits would have been useful before the comment period was over. EPA would like to take part in any visits that may be scheduled in the future.

Based on the above observations, EPA has determined that the project, as currently proposed, does not comply with the Section 404(b)(1) Guidelines and may have substantial and unacceptable adverse impacts on ARNIs. Therefore, we recommend denial of the project, as currently proposed. This letter follows the field-level procedures outlined in the August 1992 Memorandum of Agreement between the EPA and the Department of the Army, Part IV, paragraph 3(a) regarding Section 404(q) of the Clean Water Act.

The applicant's permittee-responsible stream mitigation plan is referred to as the Long Branch Mitigation Plan and is located approximately 6.2 miles from the applicant's preferred project site. The proposed mitigation site will restore approximately 2,543 LF of stream and enhance approximately 4,867 LF of stream along Long Branch, enhance approximately 5,565 LF of stream along Indian Pot Branch and restore approximately 1,632 LF along two unnamed tributaries (UT1 and UT2) that flow into Long Branch.

Using the USACE Charleston District 2010 Guidelines for Preparing a Compensatory Mitigation Plan SOP, the applicant calculates that 22,640 stream credits are required to compensate for the proposed stream impacts. The cumulative impact factor was calculated for each 11-digit HUC in which the impacts occur. The EPA appreciates that impacts are calculated for each watershed to more accurately capture mitigation needs. However, the SOP specifically states that the cumulative impact factor should be calculated for the total impacts of an entire project. Therefore, the EPA recommends these calculations be corrected by applying the appropriate factor.

While the EPA believes the proposed mitigation site has potential to generate stream mitigation credits, we have significant concerns with the plan as currently proposed. Our most significant concern is the lack of control the applicant will have on the stream reach. Over 4,000 LF of the project will only have protection and adequate riparian buffer on one bank of the stream due to current landowners being unwilling to participate in a conservation easement. This limits the ability of the applicant to ensure restoration and enhancement of the stream is successful. The applicant proposes to improve water quality and to enhance the riparian vegetation by planting desirable species and removing exotic, invasive species. All of these plans could be compromised by activities in the uncontrolled, riparian corridor.

The EPA also has concerns with water quality on the mitigation site and the lack of an adequate water quality monitoring plan. The proposed streams enter the site via highly impacted tributaries from agricultural fields. There are also multiple ditches from agricultural areas which drain into the streams. We recommend a robust monitoring plan including stations where the streams enter and exit the site, at all confluences on site and at the point of discharge of all drainage ditches into mitigation streams. We recommend collecting baseline data at these stations as well as collecting data throughout the monitoring period.

The proposed mitigation plan also lacks definitive performance standards tied to stated objectives. The applicant states that water quality improvement is an objective of the proposed mitigation. However, there are no performance standards to measure the success of meeting this objective. Exotic plant removal is a major component of the applicant's vegetation enhancement plan but it also lacks a performance standard to measure success. We recommend that exotic plant removal be considered successful if exotic vegetation remains below 1 percent of the total vegetation cover for the length of the monitoring period. While the applicant provides planting survival performance standards, there are no standards to measure the success of maintaining the species diversity of the planting plan. The applicant states that many factors will be visually monitored, including: bank stability, condition of in-stream structures, channel migration, headcuts, live stake mortality, impacts from invasive plant species or animal species and condition of pools and riffles. It is unclear if performance standards will be established for these factors, thus more details are needed.

Based on the above observations, the EPA has determined that the project, as currently proposed, does not have an adequate compensatory mitigation plan and therefore is inconsistent with the Section 404(b)(1) Guidelines and the 2008 Mitigation Rule and should be denied. Thank you for the opportunity

to review and comment on this JPN. If you have any questions regarding these comments, please contact Mr. Kelly Laycock, at [laycock.kelly@epa.gov](mailto:laycock.kelly@epa.gov) or (404) 562-9132 or myself at [able.tony@epa.gov](mailto:able.tony@epa.gov) or (404) 562-9273.

Sincerely,

A handwritten signature in black ink, appearing to read 'Tony Able', written in a cursive style.

Tony Able  
Chief  
Wetlands Regulatory Section

**CC LIST: I-73 SAC 2008-1333-DIS**

Send electronically:

Stephen Brumagin - USACE - [Stephen.A.Brumagin@usace.army.mil](mailto:Stephen.A.Brumagin@usace.army.mil)  
Travis Hughes - USACE - [Travis.G.Hughes@usace.army.mil](mailto:Travis.G.Hughes@usace.army.mil)  
Mark Caldwell- USFWS - [Mark\\_Caldwell@fws.gov](mailto:Mark_Caldwell@fws.gov)  
Pace Wilber - NMFS - [pace.wilber@noaa.gov](mailto:pace.wilber@noaa.gov)  
Susan Davis - SC DNR - [daviss@dnr.sc.gov](mailto:daviss@dnr.sc.gov)  
Vivianne Vejdani - SC DNR - [VejdaniV@dnr.sc.gov](mailto:VejdaniV@dnr.sc.gov)  
Mark Giffin - SC DHEC - [giffinma@dhec.sc.gov](mailto:giffinma@dhec.sc.gov)  
Chuck Hightower- SC DHEC - [hightocw@dhec.sc.gov](mailto:hightocw@dhec.sc.gov)

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**JOINT**  
**PUBLIC NOTICE**

**CHARLESTON DISTRICT, CORPS OF ENGINEERS**

**69A Hagood Avenue**

**Charleston, South Carolina 29403-5107**

**and**

**THE S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL**

**OFFICE OF ENVIRONMENTAL QUALITY CONTROL**

**Water Quality Certification and Wetlands Programs Section**

**2600 Bull Street**

**Columbia, South Carolina 29201**

REGULATORY DIVISION

January 26, 2011

Refer to: P/N # **SAC 2008-1333-DIS**

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the S.C. Construction in Navigable Waters Permit Program (R. 19-450, et. seq., 1976 S.C. Code of Laws, as amended), an application has been submitted to the Department of the Army and the South Carolina Department of Health and Environmental Control by

**SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION**

**POST OFFICE BOX 191**

**COLUMBIA, SOUTH CAROLINA 29202-0191**

for a permit to place fill, to construct, and to maintain bridges and culverts associated with the construction of a new four lane Interstate roadway approximately 80 miles in length on new alignment within wetlands adjacent to and within the following waters of the United States and/or their tributaries in South Carolina;

**NEWTON BAY, BEVERLY CREEK, COTTINGHAM CREEK, HAGINS PRONG, LITTLE REEDY CREEK, THE GULLEY, MAIDENDOWN SWAMP, LITTLE SISTER BAY, BACK SWAMP, LITTLE PEE DEE RIVER, BLACK CREEK, HANNAH BAY, LAKE SWAMP, RATTLESNAKE BRANCH, LONG BRANCH, JOINER SWAMP, LOOSING SWAMP, WATERY BAY, MOSE SWAMP, CHINNERS SWAMP, AND CROSS BRANCH**

In detail, the I-73 project will include; permanent placement of fill materials/bridges/culverts in a total of 4,643 linear feet of streams and 271.9 acres of wetlands, temporary clearing of 48.9 acres of wetlands, permanently clearing 17.1 acres wetlands, and excavation of 4.4 acres of wetlands. This application indicates that the project will impact a total of 23 separate streams, 166 separate Waters of the U.S. including wetlands, and 23 open water features at various locations in Marlboro, Dillon, Marion, and Horry Counties (from Latitude 34.79250 N, Longitude -79.66042 W (NAD83) to Latitude 33.93806 N, Longitude -79.06833 W (NAD83)) beginning at the NC/SC state line northeast of Bennettsville in Marlboro County and extending to its intersection with SC 22 northwest of Conway, South Carolina.

In order to give all interested parties an opportunity to express their views



**NOTICE**

is hereby given that written statements regarding the proposed work will be received by both of the above mentioned offices until

**12 O'CLOCK NOON, February 28, 2011,**

from those interested in the activity and whose interests may be affected by the proposed work.

**Note:** This public notice gives a brief description of the proposed project. A more detailed discussion of the project and its impacts are found in the attached supplemental information.

**The Proposed Project**

The proposed work consists of the construction of I-73, a new four lane interstate roadway approximately 75.3 miles in length on new alignment in South Carolina. The project includes construction of a new twin bridges over the Little Pee Dee River, Beverly Creek, Cottingham Creek, Hagins Prong, Little Reedy Creek, The Gulley, Maidendown Swamp, Back Swamp, Black Creek, Lake Swamp, Joiner Swamp, Loosing Swamp, and numerous unnamed tributaries. This project will also include the construction of interchanges, over/under passes, and improvements to existing roadways at the interchanges and over/under passes. The design would be standard interstate design with frontage roads and entrance/exit ramps at interchanges, storm water facilities, grassed medians and shoulders, and barrier fences.

**Mitigation:** The USACE Charleston District Mitigation SOP (2002) guidance has been applied to the impacts and the number of required wetland and stream mitigation credits has been calculated for each 11-digit Hydrologic Unit Code (HUC) in which the impacts occur. Secondary impacts to Waters of the U.S., such as non-jurisdictional ditches and ponds, were not included in the mitigation calculations. Although the applicant has provided that the impacted acreage for these non-jurisdictional ditches and ponds is included in the total impacted acreage for the calculation of the cumulative impact factor. Non-jurisdictional wetlands, however, were included in the mitigation calculations to satisfy the mitigation requirement for secondary impacts as discussed by the Agency Coordination Team (ACT) and the USACE. Additional temporary clearing at the bridges, up to forty five feet from the bridge parapet on one or both sides, has been included in the total impacted acreage to allow for construction access. Based upon the applicant's calculations, a total of 4,178.13 wetland credits and a total of 18,220.0 stream credits will be required for unavoidable impacts.

The proposed Conceptual Mitigation Plan for this project includes three sites which, when combined, address the I-73 mitigation needs of SCDOT. The first site, Joiner Bay, is a landscape scale wetlands restoration project with multiple wetland types matching the various impacted habitats along the I-73 corridor. The site is located two miles from the I-73 Preferred Corridor in western Horry County within the same watershed containing the majority of the wetland impacts. The second site, Brittons Neck, is a coastal plain stream restoration site located within the watershed covering the southern

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC

section of the I-73 Preferred Corridor. The integration of these two mitigation projects provides significant ecological benefits by increasing the scale of conservation at one location. The third site is the Sandy Island Mitigation Bank. SCDOT will utilize the available 1,500 credits at Sandy Island Mitigation Bank as part of this Conceptual Mitigation Plan. Once further field investigation is completed, public comments are received, and final design for these mitigation areas are completed, a final mitigation plan will be prepared for review.

The USACE Charleston District's Mitigation SOP (2002) was used by the applicant to determine the number of credits needed to mitigate for impacts to wetlands and other jurisdictional waters of the United States. The ACT agreed to calculate credits using the SOP for each 11-digit HUC watershed unit at the April 10, 2007, ACT meeting, which was the method used to derive the amount of credits needed for the I-73 project. To compensate for impacts to wetlands and other jurisdictional waters of the United States, a total of 4,781.13 wetland credits and 18,220.0 stream credits will be needed. To fulfill these credits, the credits remaining in the Sandy Island Mitigation Bank in Georgetown County will first be applied. Two mitigation sites will also be purchased, as detailed in the Conceptual Mitigation Plan. A Final Mitigation Plan will be prepared and will include a detailed plan of work for both restoration/enhancement sites with credit calculations and the mitigation banking instrument. The Final Mitigation Plan will be approved prior to issuance of the permit.

**NOTE:** Plans depicting the work described in this notice are available and will be provided, upon receipt of a written request, to anyone that is interested in obtaining a copy of the plans for the specific project. The request must identify the project of interest by public notice number and a self-addressed stamped envelope must also be provided for mailing the drawings to you. Your request for drawings should be addressed to the

**U.S. Army Corps of Engineers  
Regulatory Division, Columbia Field Office  
Strom Thurmond Federal Building  
1835 Assembly St., Room 865-B1  
Columbia, South Carolina 29201**

**Additional Source for Information:** Project maps, the environmental documents (Draft and Final Environmental Impact Statements), roadway plans, and additional permitting information can be viewed and printed at the I-73 website ([www.i73inSC.com](http://www.i73inSC.com)). In addition, it is the Corps understanding that actual copies of the above information may be viewed at the following locations within the Pee Dee region of South Carolina (it is advised that you contact these places directly to discuss availability and options for photocopying);

**Libraries:** Chesterfield County Matheson Library in Cheraw, Society Hill Branch Library in Society Hill, Green Seas/Floyds Branch library in Green Sea, Horry County Main Library in Conway, Lake View Library in Lake View, Latta Library in Latta, Loris Library in Loris, Marion County Main Library in Marion, Dillon County Main Library in Dillon, Nichols Library in Nichols, North Myrtle Beach Branch Library in North Myrtle Beach, Aynor Branch Library in Aynor, and Socastee Branch Library in Socastee,.

Other Considerations

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The District Engineer will not process this application to a conclusion until such certification is received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review. Persons wishing to comment or object to Water Quality Certification must submit all comments in writing to the S.C. Department of Health and Environmental Control at the above address within thirty (30) days of the date of this notice.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact approximately 337.6 acres of freshwater emergent wetlands that may be utilized by various life stages of species comprising the red drum, shrimp, and snapper-grouper management complexes. Our initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

Pursuant to Section 7(c) of the Endangered Species Act of 1973 (as amended), the District Engineer has consulted the most recently available information and has determined that the project may effect, but not likely to adversely affect Kirkland's Warbler and is not likely to adversely affect any other Federally endangered, threatened, or proposed species, or result in the destruction or adverse modification of designated or proposed critical habitat. This public notice serves as a request to the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service on this determination.

Pursuant to Section 106 of the National Historic Preservation Act (NHPA), this public notice also constitutes a request to Indian Tribes to notify the District Engineer of any historic properties of religious and cultural significance to them that may be affected by the proposed undertaking.

In accordance with the NHPA, the District Engineer has also consulted the latest published version of the National Register of Historic Places for the presence or absence of registered properties, or properties listed as being eligible for inclusion therein, and one historic/Section 4(f) property, the Beauty Spot Motorcourt Office, would be impacted. As per FHWA regulations, a Section 4(f) evaluation has been completed for this impact and a Memorandum of Agreement has been signed between the State Historic Preservation Office and SCDOT, which was included in the I-73 North Final EIS. To insure that other cultural resources that the District Engineer is not aware of are not overlooked, this public notice also serves as a request to the State Historic Preservation Office to provide any information it may have with regard to historic and cultural resources.

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act and, as appropriate, the criteria established under authority of Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps of Engineers cannot undertake to adjudicate rival claims.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing. Written comments should be provided to Stephen A. Brumagin at the following address:

US Army Corps of Engineers  
Charleston District, Columbia Field Office  
1835 Assembly Street, Suite 865 B-1  
Columbia, SC 29201  
803-253-3445

## **Description of the Overall Project and Each Activity in or Affecting U.S. Waters or State Critical Areas**

### *Project Description and Background*

The I-73 project is a national highway corridor that would provide a link from Michigan to South Carolina. The national I-73 corridor begins at Sault Ste. Marie, Michigan, proceeds through portions of Ohio, West Virginia, Virginia, North Carolina, and terminates near Myrtle Beach, South Carolina. This corridor was designated as a high

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC

priority corridor by the U.S. Congress, and is currently ranked number five on the National Highway System's High Priority Corridors list.

As part of this national project, the South Carolina Department of Transportation (SCDOT), in association with the Federal Highway Administration (FHWA), are working together to construct the South Carolina portion of the national I-73 project. For this permit application, I-73 begins at the North Carolina state line and extends throughout the northeastern corner of South Carolina, before terminating at S.C. Route 22 in Horry County, South Carolina (refer to Figure 1, page 2). To reach a logical terminus at future I-74, approximately four miles of the project is located in North Carolina. Due to this, the North Carolina Department of Transportation (NCDOT) and the SCDOT agreed to collaborate on the I-73 project. Permitting for the portion of I-73 in North Carolina will be completed by NCDOT and submitted to the USACE Wilmington District for approval.

#### *Location of the I-73 Projects in South Carolina*

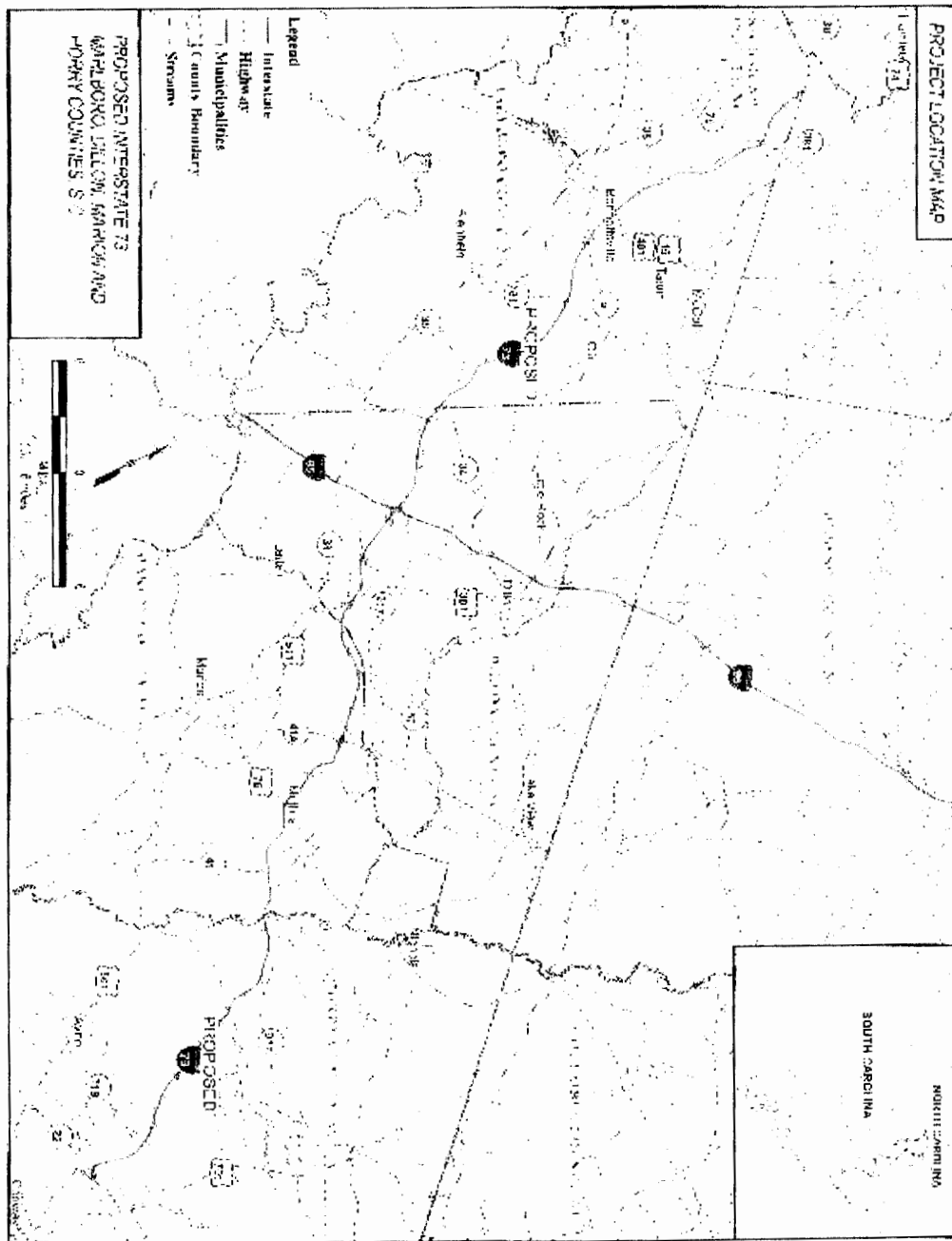
The project study areas are located within portions of Richmond and Scotland Counties in North Carolina, and Marlboro, Dillon, Marion, and Horry Counties in South Carolina. Originally, the project was developed as two single and complete projects, I-73 North, which extends from future I-74 (in North Carolina) to I-95, and I-73 South, which extends from I-95 to S.C. Route 22. The terminus of each project at I-95 provides a logical terminus and independent utility for each project. The Section 404/401 wetland permit includes the entire I-73 project within South Carolina. The four-mile segment of the project located in North Carolina will be permitted separately by U.S. Army Corps of Engineers, Wilmington District. For the purpose of this permit application and this public notice, both sections (northern and southern sections) of the I-73 projects within South Carolina will be authorized under a single permit.

REGULATORY DIVISION

26 January 2011

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC



I-73 Project Description

The I-73 project in South Carolina is 75.3 miles in length and begins at the North Carolina border (refer to Figure 1, page 2). The alignment proceeds in a southerly direction through Marlboro County, east of Bennettsville and west of Clio. It crosses into Dillon County, intersects via interchange with I-95 at a location approximately 10.7 miles northwest of the interchange/exit 181 at I-95 and SC-38 (I-73/I-95 interchange location Lat. 34.93858 N, Long. -79.48959 W), and proceeds in a southeasterly direction west of Latta before traversing into Marion County. The alignment lies between Marion and Mullins, and crosses the Little Pee Dee River into Horry County, east of Aynor going in a southeasterly direction before connecting to S.C. Route 22 via a controlled interchange. Once I-73 South is constructed, S.C. Route 22, which continues to North Myrtle Beach, would be upgraded to interstate standards, providing a smooth transition between I-73 to S.C. Route 22.

I-73 will be a high-speed; four lane fully controlled-access roadway that will require using interchanges with existing roadways for access. The mainline would be a four-lane divided facility, with two travel lanes on each side of a median, and a five-foot high barrier fence on the outside to create a physical barrier to the interstate to control access (refer to Figure 2, page 4). If traffic volumes increase to a point that additional lanes are needed to maintain an acceptable level of service, then the mainline roadway could be widened to six lanes, three travel lanes in each direction, with widening occurring within the median. The selected alternative for the I-73 project in South Carolina will have interchanges constructed at the following intersections; S.C. Route 79, U.S. Route 15/401, S.C. Route 381, S.C. Route 34, I-95, U.S. Route 501, S.C. Route 41A, U.S. Route 76, S-308, and S.C. Route 22. Frontage roads will provide access to adjacent properties, while overpasses will be constructed over the interstate to maintain existing traffic patterns/existing roadways in the project study area. An additional area was provided within the right-of-way along the mainline of I-73 to accommodate a footprint for future light rail if it were to be constructed in the area. The I-73 project right-of-way, which includes room for the above future developments, is 300 feet wide, except for where frontage roads are needed, in which the right-of-way would be 400 feet in width.

Overall Project Purpose and the Basic Purpose of Each Activity in or Affecting U.S. Waters.

The overall purpose of the I-73 project in South Carolina is to provide an interstate link between the I-73/I-74 Corridor in North Carolina to the Myrtle Beach region in South Carolina, to serve residents, businesses, and travelers while fulfilling congressional intent in an environmentally sensitive manner. The I-73 project's primary needs are to provide system linkage and enhance economic development.

The I-73 project will improve national and regional connectivity by providing a link between the I-73/I-74 National Corridor and the Myrtle Beach region. In addition, they will help enhance economic development opportunities and tourism in northeastern South Carolina, which has some of the highest unemployment levels in the state. Secondary needs differ between I-73 North and I-73 South, with the secondary needs of I-73 North being to improve access for tourism into the area, increase safety on existing roads, and multimodal planning if future light rail were to go through the area. The secondary needs for I-73 South include facilitating hurricane evacuation from the coast,



relieving local traffic congestion, and multimodal planning

#### I-73 Project Alternative Development

Alternatives were developed through the use of existing data from the project study area, and by input from state and federal agencies, stakeholders, and the public. Below is a discussion of how the alternatives were developed for both I-73 North and I-73 South. For more detailed information, please refer to Chapter 2 of I-73 North and I-73 South Final Environmental Impact Statements which can be found at [www.i73insc.com](http://www.i73insc.com).

The first step in developing alternatives for the I-73 project was to define and prioritize the issues of concern in the project study area. This was accomplished through the development of alternative evaluation categories, which were evaluated at different levels of detail over the alternative development process, from a very broad level at the beginning to a very detailed level at the end. These alternative evaluation categories, which included a variety of social, environmental, historic, economic, and engineering considerations, were used to satisfy the Purpose and Need of the project while minimizing impacts to the environment. Agencies provided input on the alternative evaluation categories, as part of the Agency Coordination Team (ACT). The ACT was composed of representatives from the FHWA, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries), Natural Resources Conservation Service (NRCS), United States Army Corps of Engineers (USACE), United States Coast Guard (USCG), United States Environmental Protection Agency (USEPA), United States Fish and Wildlife Service (USFWS), South Carolina Department of Archives and History (SCDAH), South Carolina Department of Commerce (SCDOC), South Carolina Emergency Management Division (SCEMD), South Carolina Department of Health and Environmental Control (SCDHEC), SCDHEC Office of Ocean and Coastal Resource Management (SCDHEC-OCRM), South Carolina Department of Natural Resources (SCDNR), SCDOT, and South Carolina Department of Parks, Recreation, and Tourism (SCPRT). For a summary of the ACT meetings, please refer to Chapter 4 of I-73 South and I-73 North EISs at [www.i73insc.com](http://www.i73insc.com).

Data was gathered in the form of Geographic Information Systems (GIS) mapping from various local, regional, and state entities for the project study area. GIS data was verified using other published data sources and field reviews. Over 50 GIS layers were separated into four categories and assigned a ranking (percentage weight). Each feature within a layer was assigned a numerical value, on a scale of one to ten, with ten being the most valuable. All of the layers were included in the Corridor Analysis Tool (CAT). The CAT used the GIS data to generate potential roadway corridors and analyze the corridors quickly, which allowed more time to be spent on interpretation, refinement, and comparison of potential corridors. For more detailed information on how the CAT tool works, please refer to the *GIS and Data Collection Activities Technical Memorandum* found at [www.i73insc.com](http://www.i73insc.com). Some of the GIS data layers were designated as constraints by the ACT and were to be avoided by the potential corridors, which included the following:

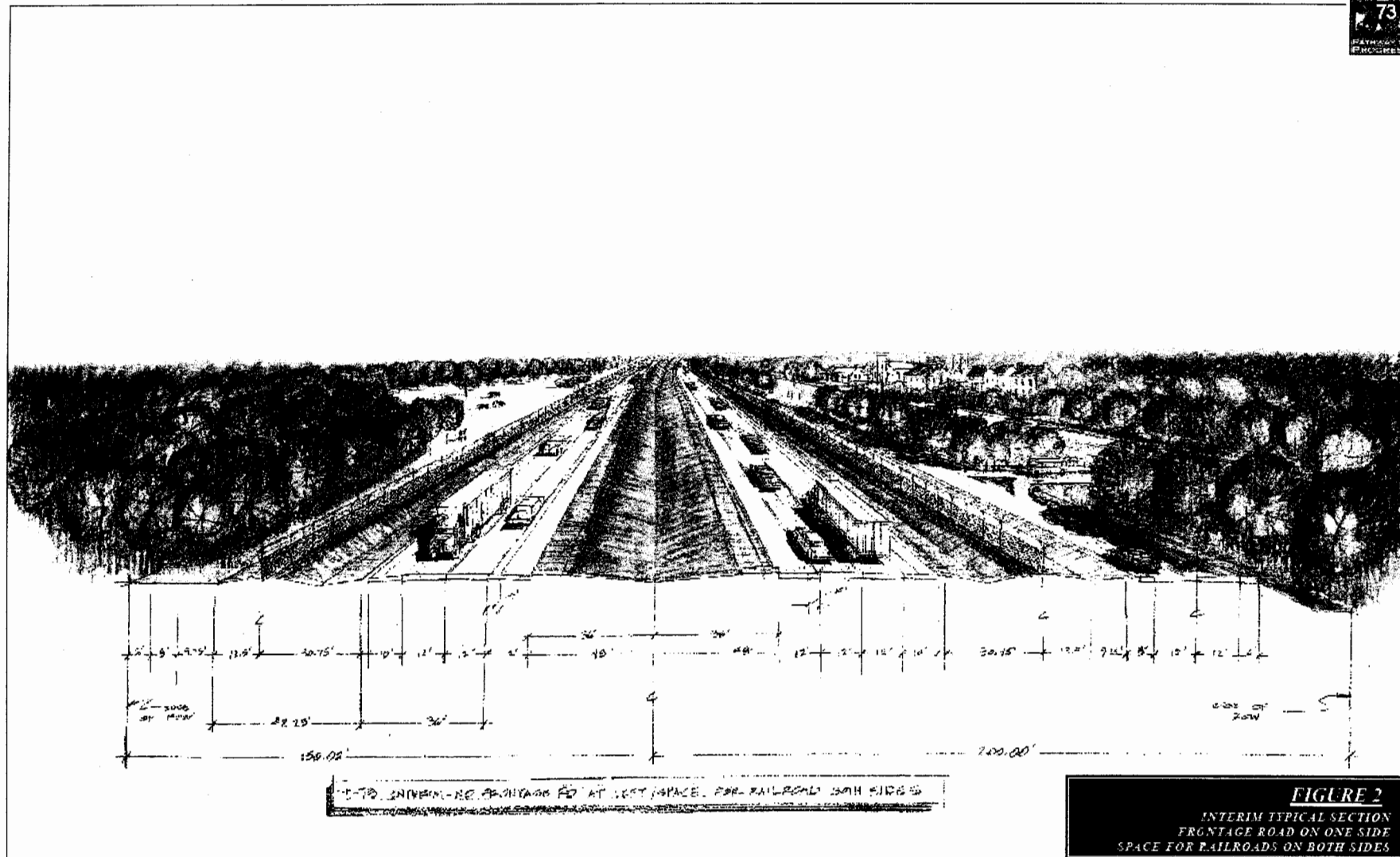
- Intact Carolina bays;
- Mitigation banks;
- Known locations of federal and state protected species;

REGULATORY DIVISION

26 January 2011

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC



Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC

- National Register of Historic Places (NRHP) listed, eligible, or potentially eligible sites;
- SCDNR heritage preserves;
- Publicly owned parks;
- Known hazardous material sites;
- Landfills;
- Mines/geologic features;
- Airports;
- Schools; and,
- Cemeteries.

Overall, the CAT developed 141 preliminary Build Alternatives for I-73 South and 1,896 preliminary Build Alternatives for I-73 North. The preliminary Build Alternatives were screened first using the Purpose and Need, and then by potential impacts to resources in the project study area. This narrowed the preliminary Build Alternatives to ten for I-73 South and six for I-73 North.

These Build Alternatives were presented as 2,500-foot wide corridors to the public during public information meetings and stakeholder working group meetings for input. (For a summary of public involvement for I-73, please refer to Chapter 4 of I-73 South and I-73 North EISs at [www.i73insc.com](http://www.i73insc.com).) Based on the input received from the public, stakeholders, as well as the ACT, the Build Alternatives were further refined and the corridors were narrowed to the right-of-way limits for each Build Alternative. Additional scrutiny was given to each Build Alternative and this information was presented to the ACT (refer to Tables 1 and 2 for I-73 South and I-73 North, respectively), which designated eight Reasonable Alternatives for I-73 South and three Reasonable Alternatives for I-73 North.

Modifications were made to the Preferred Alternatives based on comments from the public and the ACT. Field work was performed to delineate wetlands, determine whether any federally protected species or their suitable habitat was present, and to evaluate whether NRHP-eligible or potentially eligible historic resources were present within the corridor of the Preferred Alternative. The potential impacts were re-quantified for the Preferred Alternatives using the field mapped resources and are shown in Table 3 for I-73 South and Table 4 for I-73 North. As shown in Table 3, the impacts from I-73 South included 313 acres of potential wetland impacts and 3,860 linear feet of potential stream impacts. In addition, 13 residences would be potentially impacted by noise and 78 relocations would be needed. To minimize the number and extent of crossings of the Little Pee Dee River, the alignment was moved to parallel the existing S.C. Route 917 crossing, which would impact the Little Pee Dee Heritage Preserve. However, the impact to this SCDNR-owned property was mitigated. I-73 North would potentially impact 57.2 acres of wetlands and 14,994 linear feet of streams. One hazardous material site would be impacted, as well as one historic/Section 4(f) property, the Beauty Spot Motorcourt Office. A Section 4(f) evaluation has been completed for this impact and a Memorandum of Agreement has been signed between the State Historic Preservation Office and SCDOT, which was included in the I-73 North Final EIS. Eight residences and one business would be potentially impacted by noise, and 28 relocations would be required for I-73 North. For detailed information about the project study area and the potential impacts to resources, please refer to Chapter 3 of I-73 South and I-73 North EISs at [www.i73insc.com](http://www.i73insc.com).

Table 1

## Three Reasonable Alternatives Matrix for I-73 North

Category		Unit of Measure	Alternative		
			1	2 (Preferred)	3
<b>Purpose And Need</b>	System Linkage		Yes	Yes	Yes
	Economic Development		Yes	Yes	Yes
	Improved Access for Tourism		Yes	Yes	Yes
	Increased Safety on Existing Roads		Yes	Yes	Yes
	Multimodal Planning		Yes	Yes	Yes
<b>Engineering Criteria</b>	Length	Miles	40.6	36.8	37.2
	Design Criteria	Meets/ Does Not Meet	Meets	Meets	Meets
	Constructability	Ranking	1	1	1
	Construction Cost (year 2012)	\$ Millions	1,210	1,080	1,190
<b>Natural Features</b>	Threatened and Endangered Species	Yes (#) / No	No	No	No
	Species of Concern	Yes (#) / No	No	No	No
	Wetlands	Acreage	167.7	114.3	116.0
	Fill	Acreage	161.9	107.0	114.4
	Bridge	Acreage	5.8	7.3	1.6
	Wetland Quality	Value	1,205.2	768.1	729.3
	Fill	Value	1,157.6	736.2	714.6
	Bridge	Value	47.6	31.9	14.7
	Streams				
	Total Crossings	# (Linear Feet)	15 (4,566)	24 (8,143)	24 (10,062)
	Perennial	# (Linear Feet)	6 (1,666)	10 (3,778)	7 (3,555)
	Intermittent	# (Linear Feet)	9 (2,900)	14 (4,365)	17 (6,507)
	Water Quality				
	Outstanding Resource Water	# of Crossings	0	0	0
	303(d) Impaired (2006 Draft List)	# of Crossings	0	0	0
<b>Man-Made Features</b>	Habitat	Unique	No	No	No
	Uplands (Fill Only)	Acreage	1,952.6	1,800.8	1,845.6
	Floodplains	Acreage	64.0	25.0	23.0
	Hazardous Material Sites	#	1 Auction Water - Hamlet	1 Auction Water - Hamlet	2 Auction Water - Hamlet & Red Bluff Grocery
	Parks and Wildlife Refuges	Yes (#) / No	No	No	No
	Historical Structures	#	1 Visual Impact (S-18 House)	0	1 Direct Impact (McLaurin House)
	High Potential Area for Archaeological Sites	Acreage	993.0	804.9	1297.9
	Noise (R= Residential)	#	6 R	3 R	2 R
	Farmland	Acreage	1,705	1,505	1,582
	Prime	Acreage	824	805	961
	Unique	Acreage	0	0	0
	Statewide	Acreage	881	700	621

	Important				
	Poultry Farm	#	0	0	1
	Hog Farm	#	0	0	0
<b>Socioeconomic Issues</b>	Community Impacts	#	7 Aaron's Temple, Bennettsville, Blenheim, Brightsville, Chavistown, Hamlet, Salem	8 Adamsville, Bennettsville, Brightsville, Clio, Dunbar, Hamlet, Hebron, Newtonville	6 Adamsville, Bennettsville, Brightsville, Clio, Hamlet, Newtonville
	Total Relocations	#	71	41	40
	Residential Relocations	#	69	35	36
	Commercial Relocations	#	2	6	4
	Environmental Justice	# (Block Groups)	7	8	10
<b>Infrastructure</b>	Airports	#	0	0	0
	Fire Stations	#	0	0	0
	Schools	#	0	0	0
	Churches	#	0	0	1 (Community House of Prayer)
	Cemeteries	#	0	0	0
	Railroad Crossings	#	4	4	5
	Gas Line Crossings	#	3	2	1

Table 2 PREFERRED ALTERNATIVE IMPACT MATRIX I-73 South			
CATEGORY		UNIT OF MEASURE	PREFERRED ALTERNATIVE (Alternative 3)
<b>PURPOSE AND NEED</b>	System Linkage		Yes
	Economic Development		Yes
	Hurricane Evacuation		Yes
	Local Traffic Congestion		Yes
	Multimodal Planning		Yes
<b>ENGINEERING CRITERIA</b>	Length	Miles	43.5
	Design Criteria	Meets/Does Not Meet	Meets
	Constructability	Scale 1-6 (1 highest)	1
	Construction Cost (Year 2011)	Year 2011 Dollars (Billions)	1.290

<b>NATURAL FEATURES</b>	Threatened and Endangered Species	Yes (#) / No	No
	Species of Concern	Yes (#) / No	No
	Wetlands	Acres	313.0
	Fill	Acres	288.8
	Bridge	Acres	24.2
	Wetland Quality	Value	1,510.8
	Fill	Value	1,378.9
	Bridge	Value	131.9
	Streams		
	Total Crossings	# of Crossings (Linear Feet)	22 (3,860)
	Perennial	# (Linear Feet)	13 (3,155)
	Intermittent	# Linear Feet)	9 (705)
	Water Quality		
	Outstanding Resource Water	# of Crossings	3
	303(d) Impaired	# of Crossings	0
	Habitat	Unique	No
	Natural Upland Communities	Acres	576.5
	Floodplains	Acres	114.2
<b>MAN-MADE FEATURES</b>	Hazardous Material Sites	#	0
	Parks and Wildlife Refuges	Yes (#) / No	1
	Historical Structures	Yes (#) / No	0
	Noise (R= Residential)	#	13R
	Farmland	Acres	1,915
	Prime	Acres	1,186
	Statewide Important	Acres	729
<b>SOCIO-ECONOMIC ISSUES</b>	Community Impacts	Scale 1-6 (1 least impact)	2
	Total Relocations	#	78
	Residential Relocations	#	74
	Commercial and Government Facility Relocations	#	4 (3C, 1G)
	Environmental Justice	Yes / No	No
<b>INFRA-STRUCTURE</b>	Airports	#	0
	Fire Stations	#	0
	Schools	#	0
	Churches	#	0
	Cemeteries	#	0
C= Commercial, G=Government			

Table 3 Preferred Alternative Impact Matrix for I-73 North			
Category		Unit of Measure	Preferred Alternative (Alternative 2)
<b>Purpose And Need</b>	System Linkage		Yes
	Economic Development		Yes
	Improved Access for Tourism		Yes
	Increased Safety on Existing Roads		Yes
	Multimodal Planning		Yes
<b>Engineering Criteria</b>	Length	Miles	36.6
	Design Criteria	Meets/Does Not Meet	Meets
	Constructability	Ranking	1
	Construction Cost (year 2013)	\$ Millions	1,125
<b>Natural Features</b>	Threatened and Endangered Species	Yes (#) / No	No
	Species of Concern	Yes (#) / No	No
	Wetlands	Acreage	57.2
	Fill	Acreage	52.9
	Bridge	Acreage	4.3
	Wetland Quality	Value	285.9
	Fill	Value	265.5
	Bridge	Value	20.4
	Streams (Jurisdictional)		
	Total Crossings	# of Crossings (Linear Feet)	23 (14,994)
	Perennial	# (Linear Feet)	11 (5,188)
	Intermittent	# (Linear Feet)	12 (9,806)
	Water Quality		
	Outstanding Resource Water	# of Crossings	0
	303(d) Impaired (2008 Draft List)	# of Crossings	0
	Habitat	Unique	No
	Uplands (Fill Only)	Acreage	923.4
	Floodplains	Acreage	15.4
<b>Man-Made Features</b>	Hazardous Material Sites	#	1
		Auction Water - Hamlet	
	Parks and Wildlife Refuges	Yes (#) / No	No
	Historical Structures	#	1 (Beauty Spot Motor Court Office Building)
	Potentially Eligible Archaeological Sites	#	4
	Noise (R= Residential, B= Business)	#	8 R, 1 B, and Beauty Spot Cemetery



<b>Socioeconomic Issues</b>	Farmland	Acreage	1,578
	Prime	Acreage	849
	Unique	Acreage	0
	Statewide Important	Acreage	729
	Poultry Farm	#	0
	Hog Farm	#	0
	Direct Community Impacts	#	11
	Indirect Community Impacts	#	11
<b>Infrastructure</b>	Total Relocations	#	28
	Residential Relocations	#	24
	Commercial Relocations	#	4
	Environmental Justice	# of Block Groups	8
	Airports	#	0
	Fire Stations	#	0
	Schools	#	0
	Churches	#	0
<b>Infrastructure</b>	Cell Phone Towers	#	1
	Cemeteries	#	0
	Railroad Crossings	#	4
	Gas Line Crossings	#	2

A Final EIS was issued for both I-73 South and I-73 North, and was distributed throughout the project study area, to ACT members, and was available online at the I-73 Project Website. A Record of Decision (ROD) was issued for I-73 South on February 8, 2008, while the ROD for I-73 North was issued on October 22, 2008. A written Re-evaluation of the I-73 South FEIS was performed for I-73 to address design and value-engineering changes. This document was approved in May 2010 and is available at [www.i73insc.com](http://www.i73insc.com).

#### I-73 Project FEIS Commitments

As part of the I-73 Project Final Environmental Impact Statements (FEIS), commitments were made to minimize impacts where possible. Below is a partial list of project commitments made in the FEIS's for the entire I-73 Project, as well as some specific to I-73 South and I-73 North that are associated with the review of the Department of Army permit application.

#### Overall I-73 FEIS Project Environmental Commitments

- In the event that previously unknown cultural resources are discovered during

construction, the resources will be handled according to 36 CFR §800.11 in coordination with the SHPO and appropriate Tribal Historic Preservation Offices.

- Sufficient upland areas that could be utilized for borrow activities are present in close proximity to the Preferred Alternative alignment. Therefore, it appears that impacts to wetlands due to the borrowing activities could be avoided. Wetland delineations would be performed at the borrow pit sites and potential impacts to federally listed species and cultural resources would be evaluated prior to beginning excavation, in accordance with the SCDOT Engineering Directive (EDM – *Borrow Pit Location and Monitoring*).
- The contractor will comply with applicable federal, state, county, and other local air pollution regulations during the construction of the project.
- Where appropriate, pipe and culvert bottoms would be recessed below the bottom of perennial stream channels to allow movement of aquatic species through the structure.
- The use of pipes or culverts and the final bridge lengths would be determined after performing detailed hydraulic studies during the final design phase and would be dependent on several factors, such as watershed size, and the presence of FEMA regulated floodplains and floodways.
- Where practicable, 2:1 side slopes were used that reduced the roadway footprint through wetlands and other sensitive areas and thus reduced the impacts.
- If temporary roads in wetlands are used for bridge construction, the fill material would be removed and the areas reseeded with native riparian species seed mixes.
- Properly sized pipes and culverts, as determined by the final hydraulic study, would be installed under the roadway to maintain the historic hydrologic connections of wetlands and prevent the drainage or excessive flooding of jurisdictional areas.
- A Section 404 permit from the USACE and a Section 401 Water Quality Certification from SCDHEC will be obtained for unavoidable impacts to wetlands and other jurisdictional waters of the United States and mitigation will be completed for these impacts.
- Modifications, such as the installation of coffer dams in stream channels in order to construct footings for bridge pilings, might be required. However, if these modifications were needed they would be temporary and would be removed upon completion of construction and the natural grade of the wetland restored and reseeded.
- During construction, potential temporary impacts to wetlands would be minimized by implementing sediment and erosion control measures to include seeding of side slopes, silt fences, and sediment basins, as appropriate. Other best management practices would be required of the contractor to ensure compliance with the policies of 23 CFR §650B.
- Measures will be taken to reduce the likelihood of importing invasive species.

#### I-73 South FEIS Specific Environmental Project Commitments

- SCDOT will implement a seasonal moratorium pertaining to the shortnose sturgeon, in the Little Pee Dee River, for all in-water work between February 1 and April 30 of each year. Work will not impede more than fifty percent of the channel for the remainder of the year. No special measures will be employed outside this moratorium except for normal Best Management Practices.

#### I-73 North FEIS Specific Environmental Project Commitments

- Phase II archaeological testing will be performed on four sites in South Carolina determined to be potentially eligible for listing on the NRHP. If any of these sites are found to be eligible for listing, then avoidance will be evaluated and/or mitigation will be

Refer to: P/N # 2008-01333-DIS and supplemental information

Interstate 73 (I-73) from NC/SC Border near Bennettsville SC to SC 22 near Conway SC

- performed.
- Mitigation for the impacts to the former Beauty Spot Motor Court Office will be performed in accordance with the terms in the signed Memorandum of Agreement between the SHPO and SCDOT.
- The Preferred Alternative will cross five major riparian wetland systems (Little Reedy Creek, unnamed tributary to Little Reedy Creek, Hagins Prong, Cottingham Creek, and Beverly Creek) primarily on structure. Hydraulic studies during final design will determine whether the minor crossings of ten unnamed tributaries of Crooked Creek will be piped or culverted.

#### I-73 South FEIS Re-evaluation

As the right-of-way plans were being developed for I-73 South, there were minor changes to improve the design of the alignment. A re-evaluation was completed to determine whether a supplemental EIS needed to be prepared. In addition, a value engineering (VE) study was completed that also affected the final design of the I-73 South alignment. In 1995, Congress passed a law that included a requirement that VE studies be completed on projects on the National Highway System that would have an estimated cost of \$25 million or more, or on federal-aid projects where there would be a great potential to reduce costs. The objectives of a VE study are to find and eliminate unnecessary costs and construction time in a project while maintaining environmental commitments and safe operations. The VE study team was composed of engineers that did not originally work on I-73 South to review the right-of-way plans. Based on their recommendations, SCDOT incorporated three design changes to the I-73 South alignment. In addition, the design team for I-73 South also proposed some changes to improve the alignment, three of which were accepted by the SCDOT. For further information, refer to the I-73 South Re-evaluation available at [www.i73insc.com](http://www.i73insc.com).

Based on the findings of the I-73 South Re-evaluation, no new significant impacts would result from the proposed design changes, and FHWA concurred with this finding on May 7, 2010. The following is a brief discussion of the design changes made to I-73 South and how the overall impacts changed in response to the changes.

#### I-95/I-73 Interchange Ramp Widening

Initially, the flyover ramps connecting I-95 northbound to I-73 northbound and I-95 southbound to I-73 southbound were proposed to have one 16-foot travel lane. These flyover ramps were changed to two 12-foot travel lanes, which would function as necessary to accommodate future traffic, allow for temporary lane closures of one lane on the flyover ramps, allow the flyover ramps to have a longer service life and eliminate future widening, accommodate emergency services, and improve hurricane evacuation.

#### S.C. Route 22/I-73 Interchange Ramp Re-design

The original interchange ramp design connecting I-73 South to S.C. Route 22 was a three-level, system-to-system directional interchange, with multiple bridges. To reduce costs, the interchange was changed to a two-lane trumpet design, which would result in a two-level design. The re-design saved \$31.1 million by reducing the number of bridges. In addition, it would lessen the impact to Bakers Chapel Road by having a smaller overpass footprint.

#### Barnhill Road (S-26-309) Overpass Re-alignment

The initial Barnhill Road overpass had a sharp angle, or skew, where it crossed over the I-73 South alignment. Whenever a road crosses over another road at an angle greater than 90°, this is termed as a skewed crossing. The greater the variance from 90°, the heavier the skew,

which results in a longer bridge length being needed. The overpass was redesigned to reduce the heavy skew and shorten the overpass bridge, which allowed for pre-stressed concrete girders to be used instead of structural steel superstructures. This reduced the cost of the bridge by \$1.1 million, and the pre-stressed concrete girders would result in less maintenance costs over time. In addition, the skew was improved, which would result in more predictable behavior should a seismic event occur.

#### Elimination of Rest Areas

Originally, a rest area was proposed for the southbound lane of I-73 just south of Zion Road, and the rest area for the northbound lane of I-73 was just south of Harry Martin Road. It was proposed to eliminate these two rest areas, since none were required. This saved approximately \$20 million in construction costs, not including the yearly maintenance costs that would be saved. Potential utility right-of-way conflicts would be avoided, and SCDOT would not be liable for the rest areas. Also, the Harry Martin Road bridge overpass was shortened due to this design change.

#### Derrick Road Re-alignment

The Derrick Road Re-alignment is also referred to as the Watermill Road Shift. The preliminary design re-aligned Derrick Road adjacent to the western side of the mainline to connect to Watermill Road. While preparing right-of-way plans, it was found that the original design did not meet design criteria, so Derrick Road was re-aligned to 450 feet farther west of the mainline to meet design criteria.

#### Good Luck Road (S-26-569) Re-alignment

The original design of the Good Luck Road overpass involved two curves, on either side of the overpass bridge. To improve the design and driver expectancy on Good Luck Road, the overpass was re-aligned so there would be one curve, which resulted in it being relocated approximately 1,450 feet south of where the original overpass crossed the mainline of I-73 South.

#### J.H. Martin Road at Joiner Swamp Road (S-26-45) Frontage Road Re-alignment

Originally, the frontage road for J.H. Martin Road at Joiner Swamp Road was located approximately 750 feet east of the centerline of I-73 South. Recently, a new house was constructed in the construction footprint of the frontage road. To avoid relocating the residence, the frontage road was shifted approximately 300 feet east of the original alignment.

#### *Design Change Impacts*

Overall the impacts from the design changes had no impacts to communities, environmental justice populations, historic resources, potentially hazardous material sites, noise receptors, or floodplains. The impacts are noted below in Table 5, page 20. No additional relocations were required due to the design changes, with the J.H. Martin Road at Joiner Swamp Road Frontage Road Re-alignment actually avoiding a relocation that was not there previously during the original I-73 impact evaluation. The total impacts to prime, unique, or statewide important farmland soils increased by 9.19 acres, while the total impacts to wetlands and other jurisdictional waters of the United States decreased by 0.26 acre. The impacts to wetlands and other jurisdictional waters of the United States as a result of the design changes were depicted on the pending jurisdictional determination for I-73 South submitted to the USACE on June 17, 2010.

Table 4 Summary of Impacts from I-73 South Re-evaluation Design Changes					
Location	Community Impacts	Net Impacts to Protected Farmlands (in acres)	Net Impacts to Wetlands (in acres)	Federally Protected Species	Other Resources
I-95/I-73 Interchange Ramp Widening	None	7.27	+0.34	The proposed design changes would not affect any listed species, which include American chaffseed, Canby's dropwort, pondberry, bald eagle, red-cockaded woodpecker and shortnose sturgeon.	There would be no impacts anticipated to communities, environmental justice communities, historic resources, potentially hazardous material sites, noise receptors, or floodplains as a result of the proposed design changes.
S.C. Route 22/I-73 Interchange Ramp Re-design	None	-3.06	-7.38		
Barnhill Road (S-26-309) Overpass Re-alignment	None	4.28	+2.66		
Derrick Road Re-alignment	None	3.45	-0.04		
Good Luck Road (S-26-569) Re-alignment	None	-3.45	+2.78		
J.H. Martin Road at Joiner Swamp Road (S-26-45) Frontage Road Re-alignment	Avoided 1 relocation	0.7	+1.38		
Total Acreage Increase/Decrease from Original Design	-	+9.19	-0.26		
Notes: "+/-" indicates increase or decrease in impacts as compared to 2008 FEIS Selected Alternative. Calculation based on right-of-way boundary.					

*Jurisdictional Waters of the U.S.*

A jurisdictional determination has been issued by the USACE for both I-73 South and North. Due to the small shifts in the alignment of I-73 South from the Value Engineering study and Re-evaluation of the I-73 South FEIS, a request for an additional jurisdictional determination was submitted to the USACE for these design changes. The jurisdictional determination for the changes to I-73 South jurisdictional determination is currently pending.

Based on the final design, a total of 271.9 acres of wetlands and 4,643 linear feet of streams would be permanently filled as a result of the I-73 project. In addition, 17.1 acres of wetlands would be permanently cleared and 4.4 acres of wetlands would be excavated. A total of 48.9 acres of wetlands would be temporarily cleared. This results in a total of 342.3 acres of impacts to Waters of the U.S., including wetlands in South Carolina.

### Protected Species

Biological Assessments (BAs) were completed for both the northern and the southern portions of I-73 and a determination of no effect was made by the USFWS for both. As discussed in the Project Commitments for the southern portion of I-73, SCDOT will implement a seasonal moratorium pertaining to the shortnose sturgeon in the Little Pee Dee River, for all in-water work between February 1 and April 30 of each year. In addition, work will not impede more than fifty percent of the channel between April 30 and February 1. No special measures will be employed outside this moratorium except for normal Best Management Practices. A supplemental BA that was prepared for the design modifications associated with the value engineering study and development of the right-of-way plans.

### Cultural Resources

One historic/Section 4(f) property, the Beauty Spot Motorcourt Office would be impacted by the project. A Section 4(f) evaluation has been completed for this impact and a Memorandum of Agreement has been signed between the State Historic Preservation Office and SCDOT, which was included in the I-73 North Final EIS.

Archeological resources were surveyed for the I-73 entire corridor and no NHR-eligible sites were located within or in the vicinity of the project corridor.

### Essential Fish Habitat

#### I-73 South

NMFS has identified EFH within the project study area south of Conway along the Waccamaw River and a portion of Kingston Lake, east of Conway, but there are no designated areas of EFH within the corridor of the Selected Alternative.

NMFS has identified every perennial stream within the study corridor as potential habitat for juvenile and adult fish maturation or nursery habitat for diadromous fish species. This includes species such as shortnose sturgeon, Atlantic sturgeon, American shad, blueback herring, hickory shad, American eel, and striped bass. They indicate that adult sturgeons are likely to be confined to the mainstem portions of the Waccamaw River, Lumber River, and Little Pee Dee River within the I-73 study area. Only the Little Pee Dee River occurs within the Selected Alternative study corridor. As indicated above, SCDOT and NMFS have entered into an MOA with respect to road construction that would minimize potential impacts to sturgeons in the Little Pee Dee River.

As discussed in the wetland and stream mitigation section of this document, hydrologic studies have been performed to determine where the use of pipes or box culverts would be appropriate in streams and bottoms would be recessed below the bottom of the perennial stream channels to help maintain movement of aquatic species through the structure. Crossings have been evaluated to determine where stream channels could be relocated outside of the fill limits of the roadway rather than piped. The relocation of the stream channels would allow cross pipes and culverts could be placed perpendicular to the roadway and reduce the length of stream that would be enclosed.

#### I-73 North

NMFS has not designated EFH in the Preferred Alternative study corridor. The Great Pee Dee

River has been identified as spawning habitat for shortnose sturgeon, but this is in an area well outside (west) of the construction corridor. Some freshwater systems that will be crossed by the construction corridor, such as Crooked Creek, a tributary to the Great Pee Dee River, may serve as nursery habitat for the sturgeon where it empties into the Pee Dee. This area is well outside the construction corridor. The corridor does cross several small tributaries near or at their headwaters, where they are wide freshwater marshes or narrow streamhead pocosins. These wetlands do not have sufficient depth to serve as nursery habitat for shortnose sturgeon.

Although no EFH occurs in the study corridor, NMFS has expressed concern for diadromous fish species, such as the American eel, that may utilize the perennial tributaries to the Great Pee Dee and Little Pee Dee Rivers as habitat for juvenile and adult fish maturation or nursery habitat. As discussed in the wetland and stream mitigation section of this document, hydrologic studies would be performed to determine where the use of pipes or box culverts would be appropriate. The installation of pipes or box culverts would require water body modification and could affect aquatic species movement. Where practicable, stream channels could be relocated outside of the fill limits of the roadway and cross pipes and culverts could be placed perpendicular to the roadway to reduce the length of pipe or culvert required. This would reduce the distance that aquatic species would have to travel through the structures. Additionally, pipe and culvert bottoms would be recessed below the bottom of the perennial stream channels to help maintain movement of aquatic species through the structure.

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